Indiana Nonpoint Source Program

FFY 2012 Annual Report

September 15, 2012

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OVERVIEW

The Clean Water Act (CWA), through Sections 205(j) and 319(h), provides U.S. EPA (EPA) with the authority to grant federal dollars to states to mitigate and prevent nonpoint source pollution) In Indiana, these funds are administered by the Watershed Assessment and Planning Branch of the Indiana Department of Environmental Management's (IDEM) Office of Water Quality. On behalf of the State of Indiana, IDEM is pleased to present this *2012 Nonpoint Source Program Annual Report,* as required by Section 319(h) of the Clean Water Act, to report on Indiana's progress towards reducing nonpoint source pollution. It highlights the state's efforts during the reporting period to collect data and assess water quality, implement projects that reduce or prevent nonpoint source pollution, and educate and involve the public to improve and maintain the quality of water resources for current and future generations of Hoosiers. The report provides an overview of nonpoint source pollution and IDEM's role in leading efforts to address this significant source of water pollution. Information on program goals and achievements is presented, as well as information on how IDEM's Nonpoint Source Program is evolving to become more effective. Additionally, the report presents information on how IDEM's key partners play an important role in the work to address nonpoint source pollution. Lastly, the report provides information on projects funded through Section 319(h) and Section 205(j) of the Clean Water Act.

IDEM would like to acknowledge the work of our many partners in helping to bring about reductions in nonpoint source pollution. The mitigation and prevention of nonpoint source pollution requires the cooperation of many groups and agencies at the federal, state, and local level, as well as all citizens living in the state. We will only accomplish the goal of clean water by working together.

Introduction

What's the Problem?

Nonpoint source (NPS) pollution comes from many diffuse sources across the landscape that are difficult to specifically identify or abate; in contrast to point source pollution, which is discharged from a single, identified, and often regulated source, such as a pipe. Nonpoint source pollution remains the largest source of water quality problems in Indiana. Bacteria, nutrients, and sediment are the leading pollutants of concern. Information from the 2012 Indiana Integrated Water Monitoring and Assessment Report shows that NPS pollution is a significant source of impairment in Indiana waterbodies. While some nonpoint source pollution is naturally occurring, most of it is a result of human activities.

The Watershed Approach to Addressing Nonpoint Source Pollution

Environmental problems, such as nonpoint source pollution, often cut across media and political jurisdictions. Consequently, environmental mitigation and protection require a comprehensive and collaborative approach that works with a multitude of programs, agencies, and concerned citizens. The watershed approach provides a framework for coordinating and integrating the myriad programs and resources. This approach directs the focus on water quality in a geographic area delineated by a watershed. A watershed is an area of land that drains to a particular waterway, such as a stream, lake, river, or wetland. By examining water quality issues on a watershed basis, problems can be observed in relationship to their sources so that the causes can be addressed in the most effective manner. The Watershed Approach is based on four basic principles:

1. Geographic focus based on hydrological rather than political boundaries
2. Water quality objectives based on scientific data
3. Coordinated priorities and integrated solutions
4. Diverse, well-integrated partnerships

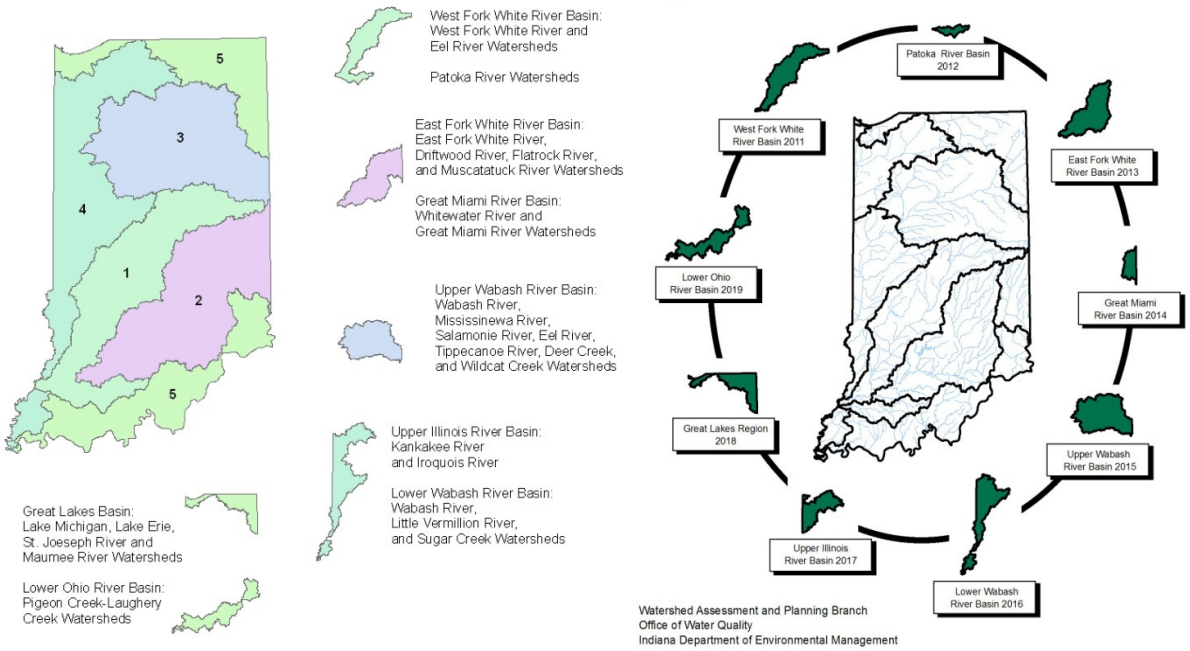
IDEM's ongoing effort to implement the watershed approach includes:

- Ensuring that internal resources continue to be focused on addressing the most significant water quality issues facing Indiana by conducting a semi-annual review of Office of Water Quality (OWQ) activities and making any necessary adjustments;
- Improving internal coordination between water quality assessment, watershed planning and implementation programs to facilitate an integrated watershed management approach to restoring impaired waterways; and
- Improving coordination with local watershed groups, community groups, and other state and federal agencies to better leverage efforts in ways that will achieve greater improvements in water quality.

STATUS OF INDIANA'S SURFACE WATERS

The Office of Water Quality conducts water quality monitoring and assessments each year to determine statistically the degree to which waters within a given basin support aquatic life, human health recreational and drinking water uses. Waters that do not fully support one or more of their designated uses are placed on Indiana's 303(d) List of Impaired Waters. This list is developed every two years as part of the state's Integrated Water Monitoring and Assessment Report.

Water quality monitoring is conducted in a different basin each year using a probabilistic approach. From 1996 through 2010, this approach provided water quality data for assessment of approximately one-fifth of the Indiana's surface waters (1-2 basins) each year. The state was divided into five major basins – West Fork White River & Patoka River basin; East Fork White River & Whitewater basin; Upper Wabash River basin; Kankakee River & Lower Wabash River basin; and the Great Lakes & Ohio River basin. In 2011, IDEM implemented a new water quality monitoring strategy in which monitoring is conducted in one of nine basins each year (see map below). This will result in a comprehensive and updated data set for the entire state in 2019. The resources freed up by this extended schedule have been reallocated for targeted monitoring projects, primarily for nonpoint source monitoring efforts for the purposes of baseline and performance measures sampling.



IDEM's 5-year (left) and 9-year (right) rotating basin monitoring and assessment approach.

The results of OWQ's rotating basin assessments are reported in the Integrated Water Monitoring and Assessment Report, which is published by OWQ every two years. According to the 2012 Integrated Water Quality Monitoring and Assessment Report,2012 Integrated Water Quality Monitoring and Assessment Report, which was submitted to EPA in April 2012, Indiana has monitored 57.2% of its streams to determine whether they are capable of supporting a well balanced warm water aquatic community. Of the streams monitored, 72.1% were supporting their designated aquatic life use, and 27.9% were found to be impaired. Indiana has monitored 49.1% of its streams for recreational uses. Of the streams monitored, 23.0% support full-body contact recreational uses, while 77.0% were found to be impaired.

The sources of water pollution in Indiana are location dependent and involve both point and nonpoint sources. Many of the problems caused by point source pollution have been and continue to be addressed through regulatory programs such as the National Pollutant Discharge Elimination System (NPDES) permit programs and compliance assistance programs. Reducing nonpoint source pollution requires a multi-faceted approach including education and outreach, watershed planning activities, and implementation of best management practices to restore waterbodies identified on Indiana's 303(d) List of Impaired Waters.

Nutrient Reduction Strategy

The Indiana Conservation Partnership (ICP) is the entity preparing Indiana's State Nutrient Reduction Strategy, with the Indiana Department of Agriculture (ISDA) taking the lead. The ICP consists of IDEM, the Indiana Department of Natural Resources, the ISDA, the Indiana Association of Soil and Water Conservation Districts, the United States Department of Agriculture's Natural Resource Conservation Service, Farm Service Agency, Purdue University Extension and the State Soil Conservation Board. This comprehensive state plan will address point and nonpoint sources, as well as urban and rural sources, and will seek stakeholder input through a series of meetings. The Strategy will include components such as:

- Analytical tools to prioritize watersheds.
- Regulations addressing nutrient reduction.
- Grants and Conservation Programs to address nutrient challenges, such as IDEM 319 and Clean Water Indiana. This will also include participation in innovative programs such as the Ohio River Basin Water Quality Trading Program to capture additional private-sector funds for conservation practices.
- Nutrient reductions achieved through adaptive management programs such as the Indiana On-Farm Network, which provides participating farmers with in depth nitrogen analysis on their own farms.
- Indiana Soil Health Strategy, which is a unified strategy of several agricultural organizations to address nutrient management.

Indiana's State Nutrient Reduction Strategy will be submitted to the U.S. EPA in 2013.

IDEM's Nonpoint Source Goals and Progress

Section 319(h) of the Clean Water Act establishes a national program to address nonpoint sources of water pollution, which are the leading causes of water quality degradation in the United States. Section 319(h) specifically authorizes EPA to award grants to states with approved Nonpoint Source Management Program Plans. As required by Section 319(h), each state's Nonpoint Source Management Plan describes the state program for nonpoint source management and serves as the basis for how funds are spent.

IDEM completed an update of the Indiana State Nonpoint Source Management Plan (Plan) in December 2008, and received approval from EPA of the updated Plan in January 2009. The Plan lays out a strategy to achieve the primary long term goal for the state's Nonpoint Source Program. In the process of updating the Plan, IDEM evaluated the state's nonpoint source goals and made significant changes to the goals to better align them with the direction the program needs to take to reach its long term goal. Achieving this goal relies on the support, cooperation, and resources IDEM and its partners offer to address nonpoint source pollution in Indiana. Some goals will be easier to achieve than others. IDEM recognizes that the plan is a living document. As progress is made towards the achievement of the goals and objectives, the Plan will be evaluated. Objectives and the approaches to reach objectives will be restructured to reflect both progress made and challenges encountered. This report contains the new goals and progress made to-date on the goals.

Indiana's Long Term Goal

Indiana's long-term goal is to:

Make measurable improvements in water quality by addressing nonpoint source pollution through education, planning, and implementation.

The Plan lays out steps to achieve this goal by providing a single, unified, and coordinated approach to dealing with nonpoint source pollution structured around program objectives. Achievement of the long-term goal will be reached through efforts made on a number of more detailed objectives. Collectively, these objectives will lead to the development of processes, programs, and skills needed to improve water quality and reduce nonpoint source pollution. The key components of the long-term goal are:

1. Identify gaps in knowledge concerning nonpoint source pollution issues in Indiana;
2. Characterize the extent and magnitude of nonpoint source pollution in Indiana;
3. Build partnerships to reduce nonpoint source pollution and improve water quality within all impaired water bodies in Indiana;
4. Focus resources within IDEM to help educate, train, and assist stakeholders and partners as they work to address nonpoint source pollution; and,

5. Target resources to activities that will result in measurable improvements in water quality and reduce nonpoint source pollution.

The long-term goal and corresponding program objectives will help guide efforts to realize the vision. In the Plan, short-term refers to one to five years. Medium-term refers to four to seven years. Long-term refers to seven to ten years from the adoption of the Plan. All objectives build on each other with the achievement of long-term objectives relying on the achievement of short-term and medium-term objectives. Program objectives are expressed as activities linked to the long-term goal.

Goal Progress

IDEM set forth a series of goals to assess progress on addressing nonpoint source pollution. The goals have been categorized by the following different areas: monitoring, partnerships, capacity building, and funding priorities and adaptive management. Following are the goals and progress made with each of the goals. IDEM is reporting on all short term goals in this report; any medium or long term goals where work has occurred also have been reported. The full set of goals can be found in the Indiana Nonpoint Source Management Plan.

Monitoring

Objective A: Nonpoint Source Water Quality Monitoring Strategy

Goal	Measure
Short-term: Develop a nonpoint source monitoring strategy in conjunction with IDEM's Assessment Branch to evaluate the magnitude and extent of nonpoint source pollution within the state of Indiana.	Measure: Completion of the nonpoint source monitoring strategy and its incorporation into IDEM's comprehensive water quality monitoring strategy.
Progress or Accomplishments: Complete as reported in the FFY 2011 NPS Annual Report.	

Goal	Measure
Short-term: Develop a data quality objective (DQO) process to require performance and acceptance criteria for data collection by third party entities.	Measure: Completion of a third party DQO process to serve as the basis for designing a plan for collecting data of sufficient quality and quantity to support the goals of the study.

Progress or Accomplishments: In process. The table below describes the overall structure of IDEM's External Data Framework, which includes potential uses of external data and their corresponding data quality levels.

	Data Quality Level	Potential Uses of the Data by OWQ Programs
Increasing Data Quality Requirements ↑	3	*Any Level 1 or Level 2 use* *TMDL Modeling* *CWA Section 305(b) Water Quality Assessments* *CWA Section 303(d) Listing Decisions* *Demonstrating the effectiveness of any implementation effort such that one/more impairments may be removed from the State's 303(d) List of Impaired Waters* *Determining representative background conditions for the purposes of developing National Pollutant Discharge Elimination System (NPDES) permits*
	2	*Any Level 1 use* *Supplementary information for use in planning and prioritization of IDEM monitoring efforts or TMDL development* *Demonstrating the effectiveness of TMDL implementation efforts* *Demonstrating the effectiveness of WMP implementation efforts* *Baseline data collection for analysis of trends over time* *Watershed management planning* *Demonstrating compliance with minimum control measures specified in Municipal Separate Storm Sewer Systems (MS4) permits* *Establishing need for low interest loans to assist with Regional Water and Sewer District (RSWD) formation*
	1	*Education and raising awareness of water quality issues* *Supplementary information for Total Maximum Daily Load (TMDL) development* *Supplementary information for development of Indiana's Integrated Water Monitoring and Assessment Report (IR)*

Data quality objectives for Level 3 Data (the most stringent level with regard to data quality) and Level 1 (the least stringent) have been drafted and are currently being finalized. Level 2 data quality objectives will build upon the products developed through the Environmental Indicators project, funded by a Section 319(h) grant and spearheaded by Purdue University. Technical assistance for groups submitting data at Level 2 is currently being developed through a contractor funded by a Supplemental 106 grant from EPA. Due to staffing and resource constraints, progress on this project has been delayed. The

External Data Framework is expected to be completed and ready for implementation in 2014.	
Goal	**Measure**
Medium-term: Use additional resources (e.g., staff, funds, and technical support) to monitor water quality in watersheds where nonpoint source restoration activities have occurred. The monitoring data will be compared to baseline information, if available, to gauge the efficacy of the work.	Measure: Implementation of the nonpoint source monitoring program and analysis of data collected.
Progress or Accomplishments. Ongoing. In 2011, IDEM completed targeted monitoring at 21 sites to evaluate effectiveness of restoration activities. Building on the 2011 work, in 2012 IDEM sampled 10 additional sites for biological communities to measure water quality improvement where nonpoint source activities have occurred in the South Fork Patoka River watershed. Also in 2012, IDEM began its baseline watershed studies for watershed planning in the East Branch Little Calumet River watershed and Indian-Kentuck watershed. These studies will lay the foundation for future analysis of water quality improvements gained through nonpoint source restoration activities.	

Objective B: Data Collection

Goal	**Measure**
Medium-term: Develop and implement a system to store and evaluate nonpoint source pollution environmental monitoring data collected in the state of Indiana.	Measure: Completion of a nonpoint source pollution database for the storage and evaluation of data collected by nonpoint source projects.
Progress or Accomplishments: Core database structure is complete – maintenance and improvements are ongoing. To provide an expanded mechanism to enter 319(h) project data into EPA's Storage and Retrieval System (STORET), the Nonpoint Source Program is using funds to build onto and improve the existing water quality data Assessment Information Management System (AIMS). The existing AIMS application handles data from multiple water quality and aquatic biota programs, plus data from the nonpoint source and water quality grants. The new improvements will incorporate additions to the web browser access and enhance the STORET interface capabilities. Updates to the query and analysis tools in AIMS will help in statistical and GIS applications. This project just started and progress toward upgrading the application for better maintenance capabilities will segue into the development of the first of several enhancements scheduled over the next 2 years. Of the specifically nonpoint source enhancements, the data collection spreadsheet templates distributed to grantees and contractors for electronic submittal are being reviewed, revised, and improved to increase user friendliness and efficiency when imported into AIMS. Once these sheets are loaded into AIMS, IDEM has enhanced the state node functionality with further improvements within AIMS to better upload to US EPA via the WQX.	
Goal	**Measure**
Long-term: Develop standard operating procedures to allow third party entities to enter data into the NPS pollution database or AIMS.	Measure: Development of a Web page for use by third party entities to enter data collected for Section 319-funded projects into the NPS data collection application (or AIMS) optimizing the access to currently collected data by 319 funded projects.

Progress or Accomplishments: As part of the development of enhancements to the AIMS application, it is expected that this interface could be added to the AIMS with access to this information through the new multi-functional database of nonpoint source watershed data, i.e. groups, activities, status, etc. The proposal for this larger multi-functional database will be the one submitted in FFY 2013 above.

Partnerships

Objective A: Improve EPA/IDEM Nonpoint Source Program Coordination

Goal	Measure
Short-term: Establish a formal schedule of meetings with EPA to evaluate IDEM's Nonpoint Source Program and obtain feedback on program improvement opportunities and successes.	Measure: Establishment of a fixed communication schedule for program coordination.
Progress or Accomplishments: Goal requires revision. Communication is regular with US EPA staff on policy and program issues. In its 2011 NPS Annual Report, IDEM reported that it had determined that communication with EPA will occur as needed and will not be tied to a fixed schedule. EPA agreed with this determination. Therefore, according to the principles of adaptive management, this goal and associated measure will be revised in the next State NPS Management Plan update, anticipated for FFY 2013.	

Objective B: Support the Indiana Department of Natural Resource (IDNR) on the Section 6217 component of the Indiana Coastal Zone Management (CZM) Program

Goal	Measure
Short-term: Support the IDNR on the Coastal Zone Management Program in obtaining full program approval.	Measure: Number of conditions resolved through the collaborative efforts of the two programs.
Progress or Accomplishments: In process. IDEM has provided support to the IDNR on the Coastal Zone Management Program in a number of keys areas that will assist with full program approval. Since the 2011 NPS Annual Report was submitted to EPA, IDEM has coordinated with the CZM Program to work towards obtaining approval for all remaining measures. IDEM met with the CZM Program in February 2012 to identify potential back-up authorities to implementing its program. IDEM NPS also requested and received a legal opinion from IDEM Legal Counsel as required by 6217 to verify those authorities. IDEM NPS is currently funding a watershed management planning process through Section 319 funding for the East Branch Little Calumet as part of its commitment to complete watershed management plans for the entire coastal zone.	
Goal	**Measure**
Medium-term: Develop a collaborative approach between IDEM and IDNR to work on local watershed management planning and implementation efforts in the Great Lakes drainage basin.	Measure: Number of projects in the coastal zone where IDEM has worked collaboratively through funding, technical support, or other methods with stakeholders in the Lake Michigan and Lake Erie watersheds.

Progress or Accomplishments: In process. There IDNR Coastal Nonpoint Source manager and IDEM's new Northwest Watershed Specialist have a collaborative and supportive partnership in terms of watershed management and reducing NPS pollution in the Little Calumet-Galien basin. Both are actively involved with the 319 funded watershed projects in the Little Calumet-Galien basin: Trail Creek, Salt Creek and the East Branch Little Calumet (Dunes Creek and Galena River are not active at this time). Both attend the NIRPC Environmental Management Policy Committee meetings (held monthly) as schedules permit. Both IDNR and IDEM are also participating in preliminary discussions for developing a TMDL, doing baseline monitoring, and funding a WMP through 319 for the Deep River – Portage Burns Watershed for 2013. This is the largest remaining area to have watershed planning on the Little Calumet-Galien basin.

Objective C: IDEM Programs

Goal	Measure
Short-term: Focus nonpoint source financial and technical resources in watersheds with approved TMDLs that address nonpoint source pollution and implementable watershed plans that are supported by a local watershed group.	Measure: Number of watersheds with approved TMDLs that address nonpoint source pollution impacts and that have Section 319(h)-funded planning or implementation activities occurring.
Progress or Accomplishments: Ongoing. IDEM has focused Section 319(h) funds on watersheds with approved TMDLS for six funding cycles. All 33 of IDEM's approved watershed-based TMDL reports address NPS. Currently, there are 11 open or pending 319-funded grants within watersheds with an approved watershed-based TMDL. In FFY 2009, there were 16 active 319 grants and 24 watershed-based TMDLs. In 2012, 2 projects have been recommended for funding in areas with TMDLs, representing 23% of all local grant funds recommended in 2012 (compared to 54% of local funds awarded in 2011, no local watershed grants awarded in approved TMDL areas in 2010, and 21% of local funds awarded in 2009). Several other watersheds where grants were recommended for funding have TMDLs almost completed or pending, including Pigeon Creek (anticipate TMDL completion by end of FFY 2012), Middle Eel (sampling complete), and Middle Patoka (sampling to be completed in 2012). If implementation funding provided for these watersheds were included in the percentages of local grant funds allocated to areas with TMDLs, the percentage of FFY 2012 funding awarded to watersheds with TMDLs would increase to 75%. It should be noted that Indiana awards its pass-through grants through a competitive process. While watersheds with approved TMDLs are given priority in the proposal review, other factors are weighed in the decision-making. In addition, each year grant requests exceed the amount of funding available for Section 319 pass-through grants. In 2012, 10 of the 24 submitted 319 grant proposals would have addressed watersheds with approved TMDLs. However, only 2 of those proposals (totaling $480,950) scored high enough in all criteria to be recommended to EPA for funding.	
Goal	**Measure**
Short-term: Work collaboratively with IDEM's monitoring and assessment programs through the establishment of a formal nonpoint source monitoring strategy.	Measure: Creation of a nonpoint source monitoring strategy and internal procedures detailing needed monetary and staffing resources.
Progress or Accomplishments: Complete as reported in FFY 2011 NPS Annual Report.	
Goal	**Measure**

Medium-term: Use input obtained from nonpoint source partners to develop and revise, as needed, a comprehensive IDEM Watershed Specialist strategy to support IDEM's internal and external partner's efforts to focus on alleviating nonpoint source pollution issues.	Measure: Completion and implementation of a comprehensive Watershed Specialist strategy.
Progress or Accomplishments: Complete as reported in the FFY 2011 NPS Annual Report.	

Objective D: Nonpoint Source Partnerships

Goal	Measure
Short-term: Create an advisory group of state and federal agencies, as well as interested entities and organizations, to assist with refining the state's nonpoint source policy and procedures for all programs and agencies that work with nonpoint source pollution.	Measure: Creation of an advisory group to the IDEM Section 319(h) Program on nonpoint source issues that includes representatives from all applicable programs and partnerships, both regulatory and non-regulatory.
Progress or Accomplishments: In process. Initial work to scope the potential membership and mission of this group has occurred, but no formal meetings have taken place. However, through the Indiana Conservation Partnership leadership meetings there is opportunity to discuss IDEM's Section 319(h) grant program as well as statewide nonpoint source issues. IDEM awaits guidance from the National 319 Study before forming the advisory group to begin work on revisions to the NPS State Management Plan that will be due in 2013.	
Goal	**Measure**
Short-term: Use current IDEM Watershed Specialists to assist partners with nonpoint source planning and implementation activities.	Measure: Percentage of partner projects working with an IDEM Watershed Specialist for nonpoint source-related activities.
Progress or Accomplishments: Ongoing. Watershed Specialists have been providing technical support to watershed groups and our partners for seven years. Aside from the grant-specific assistance provided to grantees, Watershed Specialists have assisted IDNR with the review of Lake and River Enhancement watershed management plans, assisted USDA-NRCS with choosing watersheds for their National Water Quality Initiative, served on the planning committee for the IASWCD Annual Conference, and worked with ISDA district support specialists as watershed issues arise. Specialists also routinely partner with statewide agencies and organizations to train local stakeholder groups on topics related to nonpoint source planning and implementation. In terms of percentages, 100% of our grantees are connected with their Watershed Specialist for technical assistance. For FFY 2012, we estimate that we are currently actively working with approximately 66% of our SWCDs, 30% of Indiana's RC&Ds, 6% of our MS4s, and at least 17 partner agencies and 42 nonprofit watershed/water quality groups and ad hoc groups (percentage impossible to estimate). (Note: many MS4s are integrated into watershed groups – while Watershed Specialists may not be providing individual assistance to these MS4 entities, they are still working toward goals of the MS4s through other groups).	
Goal	**Measure**
Medium-term: Work with surrounding states that share watersheds with Indiana to develop consistent approaches to addressing nonpoint	Measure: Creation of standard operating procedures to work with Ohio, Michigan, Illinois, and Kentucky on the coordination of nonpoint source activities

source pollution.	within watersheds that span state boundaries.
Progress or Accomplishments: Ongoing. Watershed Specialists have been working with several bi- and tri-state watershed groups and their partners to create watershed management plans, including the Upper Maumee River and Middle and Upper St. Joseph River WMPs that meet the checklists of multiple states. In addition, the TMDL program is currently working on a bi-state TMDL for the Pigeon River with the State of Michigan. As a result of these multi-state efforts, representatives from IDEM, Ohio EPA, and Michigan DEQ have shared information on checklist requirements, monitoring procedures, and TMDL processes in their respective states. While no SOPs have been produced, the "work" of this goal is still being accomplished – it is possible that this metric will need to be revisited in the future.	
Goal	**Measure**
Long-term: Establish a formal process to maintain an inventory of watershed groups, organizations, and governmental entities whose primary purpose is to study, plan, or manage nonpoint source pollution.	Measure: Creation and maintenance of a web-based database of active watershed groups, organizations, and governmental entities whose primary purpose is to study, plan, and manage nonpoint source pollution. The database will be deployed on IDEM's web site.
Progress or Accomplishments: In process Compilation of an inventory of watershed-based organizations was accomplished in 2007 and was updated in 2011. Purdue University, as a part of their Watershed Leadership Program, has produced a Google Maps-based tool for locating watershed groups entitled the Indiana Watershed Group Finder. This inventory is the basis for the Watershed Specialists database, a database of group contacts and progress information. Along with this database, IDEM plans to integrate into the much larger, multi-functional data management system that will more easily provide geospatial information, WMP development, load reductions, TMDL development, implementation projects, etc. Currently, the various individual databases used throughout the program have been difficult to maintain, relate, or cross reference. It is anticipated that a proposal for this larger multi-functional database will be submitted in FFY 2013. Establishment of standard operating procedures for maintenance of this database will take place after its completion.	

Capacity Building

Objective A: Develop Education and Training Initiatives for Use at the Watershed Level to Build Capacity of the Staff of Watershed Groups and Local Governments

Goal	Measure
Short-term: Update IDEM's Nonpoint Source web site to create a repository for information on nonpoint source planning, implementation, and guidance on applying for and implementing Section 319(h) grants.	Measure: Completion of updated Nonpoint Source web site and compilation of a utilization survey.
Progress or Accomplishments: Complete as reported in FFY 2011 NPS Annual Report.	
Goal	**Measure**
Short-term: Evaluate existing nonpoint source pollution program partners and determine resources (financial and technical) needed to improve program efficacy.	Measure: Development of partner resource needs report.

Progress or Accomplishments: In process. IDEM has worked with partners on multiple fronts to achieve this goal. First, as a part of the Indiana Conservation Partnership, IDEM participated in an evaluation of technical staff training needs across the Partnership. Training needs were identified through the use of an Individual Skills Inventory that was distributed to all applicable staff in the partnership in FFY 2011. Training needs have been ranked and a technical advisory committee has been formed to begin to develop curriculum for these needs. Secondly, the Indiana Association of Soil and Water Conservation Districts, utilizing Section 319 funds, sponsored a survey in 2011 to determine financial and technical needs of watershed groups and partners. Three categories of needs were identified: fund development; marketing; and volunteer recruitment and management. Workshops designed to begin addressing funding needs began in the summer of 2012.

Goal	Measure
Medium-term: Develop collaborative training and outreach materials based on needs solicited from partners.	Measure: Number and types of training and types of outreach materials developed and distributed as a result of assessed needs.

Progress or Accomplishments: In process. In response to the 2011 individual development needs surveys, IDEM continues to participate as part of the Indiana Conservation Partnership's Training and Certification Program, meeting with other partners to develop training for nonpoint source issues in Indiana. In addition, one of our agency contractors, through a 319 grant, developed and presented two workshops to address financial needs of nonpoint source partners as identified in the survey. Attended by 22 people representing 19 SWCDs/watershed groups. Materials and handouts were developed and distributed to attendees to provide continuing benefit.

Goal	**Measure**
Long-term: Create web-based tools to assist local groups with identification of resources, partners, and technical support to create more self-sustaining watershed groups dedicated to addressing nonpoint source pollution.	Measure: Number and type of IDEM Nonpoint Source web site hits.

Progress or Accomplishments: Ongoing. Work has begun on this objective through the creation of tools for the revised NPS website. Tools created to date include e303d, ePrintshop, and the Watershed Toolkit. In addition, we've worked in partnership to create the Indiana Water Monitoring Inventory, Hoosier Riverwatch database, Online Load Duration Curve and web-based LOADEST interface. In 2012, work began on the refinement of IDEM's watershed management plans (WMPs) webpage to allow for multiple methods of searching the available WMPs in the state. The creation of tools will be on-going as new needs come to the forefront and resources become available to create them. For the period July 1, 2011 to June 30, 2012, the Watersheds/NPS area of the IDEM website received 60,327 total page visits with an average of 5,027 visits per month.

Objective B: Comprehensive Training Program

Goal	**Measure**
Short-term: Develop and conduct training workshops to inform 319(h) grant recipients about key program policies and provide training on grant implementation.	Measure: Annual Section 319(h) training workshop conducted by IDEM that is available for all grant recipients and applicants.

Progress or Accomplishments: Complete as reported in the FFY 2011 NPS Annual Report.

Goal	Measure
Long-term: Develop and implement self-sustaining programs (train-the- trainer) to teach watershed leaders, water quality data collectors, and project facilitators to successfully implement watershed plans.	Measure: Development of a multi-agency strategy for assessing needs and developing related skills and publish on IDEM's NPS Web site
Progress or Accomplishments: Early work on this objective has begun, though remains a piecemeal approach without an over-arching strategy shared by all partners. IDEM has been a partner in several efforts to teach watershed management professionals the skills needed to successfully implement watershed management plans, including the Indiana Water Quality Monitoring Council's field days and symposia, Watershed Networking Sessions, the Indiana Watershed Leadership Academy, planning for the Indiana Association of Soil and Water Conservation Districts' annual conference, and the Indiana Conservation Partnership's Training and Certification Program whose goal is to teach technical implementation skills. Further, a supplemental 106 grant has been secured to implement the outreach and education component of the External Data Framework, to be published to the IDEM's website. While it is anticipated that this objective will be achieved through a multi-pronged approach, a strategy must be developed by the multiple agencies involved in water quality management to successfully carry a consistent message to Indiana's "on-the-ground" watershed managers.	

Objective C: Raise Public Awareness and Provide Education through Outreach Activities

Goal	Measure
Short-term: Enhance efforts to educate citizens on urban and agricultural nonpoint source issues through the development of a comprehensive outreach campaign.	Measure: Number of outreach efforts conducted, categorized by training versus education.
Progress or Accomplishments: In process. Education materials including six new brochures, seven bill stuffers, and several large-scale displays were completed in early 2011. These materials were used by IDEM staff to educate the public on nonpoint source issues and concerns at 2 conferences in FFY 2012 (Indiana Lakes Management Society, Indiana Environmental Health Association). Staff turnover has limited IDEM's NPS outreach program this year, but the hiring of a new Outreach Coordinator in March 2012 and the completion of an Outreach Plan should allow expansion of this effort.	
Goal	**Measure**
Medium-term: Develop a repository of web-based public outreach and educational materials for use by internal and external partners and local watershed groups.	Measure: Number of IDEM Nonpoint Source website hits.
Progress or Accomplishments: Complete as reported in FFY 2011 NPS Annual Report.	
Goal	**Measure**
Medium-term: Utilize the IDEM NPS Web site to distribute information regarding NPS pollution, upcoming training events, available resources, and other relevant information. Make it available for use by locally led watershed groups.	Number of IDEM NPS Web site hits. Evaluate the usage of the IDEM NPS website by using their length of stay on the Web site.
Progress or Accomplishments: In process. For the period July 1, 2011 to June 30, 2012, the	

Watersheds/NPS area of the IDEM website received 60,327 total page visits with an average of 5,027 visits per month.

Objective D: Build Sustainable, Locally-Led Watershed Groups

Goal	Measure
Short-term: Work with active watershed groups to assess resource (technical, financial, and managerial) needs to enhance or ensure sustainable activities beyond Section 319(h) funding.	Measure: Number of watershed groups that actively seek and obtain funding, in addition to Section 319(h), to sustain their organization and to continue their efforts to reduce NPS pollution.
Progress or Accomplishments: Ongoing IDEM does not currently maintain a tracking system for watershed group funding beyond the 319 and 205j programs, though anecdotally, we believe strongly that watershed groups are seeking and obtaining more non-Section 319 funding than ever. We do know that at least nine watershed-focused groups have received state funding for their efforts. One grantee (the Middle Eel River Initiative) has received Mississippi River Basin Initiative funding, USDA-NRCS National Water Quality Initiative supplemental EQIP dollars, and U.S. Fish and Wildlife grants, in conjunction with 319 funds, to implement their watershed management plan. We also know that several groups (e.g. Upper White River Watershed Alliance, Tippecanoe Watershed Foundation, Kosciusko Lakes and Streams, new Ft. Wayne-based three rivers group – currently without an official name, and the West Central Indiana Watershed Alliance) have received or anticipate receiving corporate sponsorship for their efforts. At least 3 groups are known to have received membership funds during FFY 2012. Given IDEM's limited ability to track group funding outside of the 319 and 205j programs, this measure may need to be updated.	
Goal	**Measure**
Long-term: Work to create new watershed groups from ground level and provide these groups with a strong base for sustainability.	Measure: Number of new watershed groups formed subsequent to January 2009.
Progress or Accomplishments: Ongoing. IDEM's Watershed Specialists have assisted over 100 active and developing watershed projects, sponsored by watershed groups, SWCDs and other entities on many levels including: meeting facilitation, reviewing draft and final watershed management plans, developing and reviewing grant proposals from several funding programs, obtaining water quality data and developing watershed maps, connecting groups with other local organizations and agencies to complement planning efforts, and assisting watershed coordinators with the overall watershed planning and implementation processes. Much of this work has insured that existing groups have remained functional and active; however, at least four new groups have been formed during this reporting period across the state. Since 2009, a total of 24 new watershed efforts have been formed throughout the state.	

Funding Priorities and Adaptive Management

Objective A: Focus Section 319(h) Planning Funds

Goal	Measure
Short-term: Target Section 319(h) funds in appropriate amounts, to watershed groups that will develop and implement watershed plans to	Measure: Number of watershed groups developing and or implementing watershed plans in 303(d) listed waters receiving Section 319(h) funds in

address 303(d)-listed waters impaired by nonpoint source pollution.	appropriate amounts to accomplish their projects goals.
Progress or Accomplishments: Section 319(h) program funding priorities are to plan for and implement plans on waters listed on the 303(d) list or waters for which a TMDL has been calculated. In FFY 2012, the Nonpoint Source Program initiated five watershed management plans and approved four successfully completed plans. Using FFY 2012 319 funds, the program has proposed to revise one plan and initiate planning in two watersheds, with two more plans to be initiated using 205j funding. The Nonpoint Source Program has also proposed to implement seven plans utilizing FFY 2012 funds. To date, at least 65 watershed management plans are in some phase of implementation in Indiana. Two began implementation in FFY 2012.	
Goal	**Measure**
Medium-term: Assess water quality data to identify watersheds that should be evaluated for possible nonpoint source water quality improvements.	Measure: Number of watersheds identified for evaluation of nonpoint source water quality improvements.
Progress or Accomplishments: Ongoing. IDEM has developed a draft list of watersheds where Section 319(h)/205J funds have been allocated to local watershed groups that have implemented significant on-the-ground nonpoint source best management practices. These watersheds have been cross-referenced with the 2002 303(d) list to identify waters that may meet the SP-12 (Measure W) and WQ-10 (Success Stories) requirements and should be re-evaluated. Identification of watersheds for targeted monitoring for delistings is currently tracking with current monitoring resources. However, it is anticipated that identification will out-pace monitoring capacity so that a running list of waters to test will be kept by the Watershed Assessment and Planning Branch.	
Goal	**Measure**
Long-term: Work with internal and external partners to solicit and utilize joint funding strategies, including Section 319(h) funds, in watersheds where other partner-funded projects are occurring to maximize the efficacy of funds.	Measure: Number of projects funded by Section 319(h) in connection with other partner funds that document improvements in water quality where nonpoint source pollution was identified and a watershed approach was used to solve the problem.
Progress or Accomplishments: In progress. Three watersheds were reported to EPA as part of the SP-12 success measure in FFY 2012. These watersheds included 319 funding alongside state, federal, and local funding that resulted in water quality improvement using a watershed approach. In addition, at least 16 319 grantees are known to be using external funds, apart from the required match, to implement their watershed management plans. For example, one grantee (the Middle Eel River Initiative) has received Mississippi River Basin Initiative funding, USDA-NRCS National Water Quality Initiative supplemental EQIP dollars, and U.S. Fish and Wildlife grants, in conjunction with 319 funds, to implement their watershed management plan and it is anticipated that considerable pollutant load reductions will be realized as a result of the investment. Other watershed groups are utilizing membership funds, state Clean Water Indiana and Lake and River Enhancement (LARE) funds, USDA Farm Bill program funds, Great Lakes Restoration Initiative funding, private foundation awards, and other funding mechanisms to promote water quality and implement their WMPs.	

Objective B: Target Key Pollutants and Watersheds

Goal	Measure
Short-term: Determine the extent of impacts that sediments, bacteria, nutrients, and other identified nonpoint source pollutants have on Indiana waters.	Measure: Document the results of impact analysis.
Progress or Accomplishments: Ongoing. The completion of the External Data Framework (the acceptance criteria IDEM will use to evaluate water quality information provided by external organizations for potential use in OWQ's 305(b)/303(d) assessment and listing processes) will help move progress on this goal ahead. Additional data is needed to provide a larger spatial analysis of water quality concerns in Indiana. This goal may need to be adjusted to a medium term goal to reflect the time needed to collect and analyze data.	
Goal	**Measure**
Medium-term: Target Section 319(h) funds to watersheds with waters that are impaired by nonpoint source pollution and where TMDLs can be implemented.	Measure: Number of watersheds that have received Section 319(h) funds where implementable TMDLs have been completed.
Progress or Accomplishments: Ongoing. The Nonpoint Source Program currently gives priority for project proposals that address watersheds in which a TMDL has been completed OR watersheds in which there are waterbodies on the 303(d) list. Currently, there are 420 out of 1,589 HUC 12s in Indiana that have both a TMDL and an approved watershed management plan. There are at least 148 HUC 12s where TMDLs have been or are being implemented, in part, by projects funded by Section 319(h) grants.	

Objective C: Adaptive Management

Goal	Measure
Short-term: Work with EPA to establish a comprehensive adaptive management program to improve all aspects of the implementation of the IDEM Section 319(h) Program with clearly delineated priorities and corrective actions.	Measure: Percentage of program completion
Progress or Accomplishments: In progress. The Watershed Assessment and Planning Branch Chief, the Watershed Planning and Restoration Section Chief, the Senior Project Manager, and the Senior Watershed Planner met with EPA Region V in February and September 2012 to discuss several program issues and next steps. Given the EPA's National 319 study and the GAO's Nonpoint Source Water Pollution report to Congress (both released in FFY 2012), it is very likely that new guidance will be provided to IDEM in regards to its current program and future adaptive management efforts. It is IDEM's intention to work with EPA to establish a more formal adaptive management program.	

RESTORATION EFFORTS AND ACHIEVEMENTS

A primary focus of IDEM's Nonpoint Source Program is on-the-ground work to improve water quality. Funding for the development and implementation of watershed management plans (WMP) that guide efforts to restore water quality on waterways impaired for nonpoint source pollution has resulted in measurable improvements, especially in terms of estimated pollutant load reductions and stakeholder involvement. However, more work remains to be done to fully restore and protect water quality.

Section 319(h) & Section 205(j) Grant Programs

The Watershed Planning and Restoration Section in the Office of Water Quality manages two federal pass-through grant programs aimed at improving water quality in the state: Section 319(h) and Section 205(j); each named after the section of the Clean Water Act that authorizes them. More information about the two grant programs in Indiana may be found on IDEM's website at http://www.in.gov/idem/nps/.

The Section 205(j) Grant Program is dedicated to water quality management planning. Funds are used to determine the nature, extent, and causes of point and nonpoint source pollution problems and to develop plans to resolve these problems. IDEM requested $331,250 in FFY 2012 Section 205(j) funds. Once the funds are awarded by EPA, IDEM plans to fund two watershed management plan development projects; one in the Upper Wabash River watershed and one in the Fawn River watershed. A list of all 205(j) projects open during this fiscal year may be found in Appendix D of this report.

The Section 319(h) Grant Program is one of the primary resources for reducing nonpoint source pollution in Indiana. IDEM requested $3,336,531 in FFY 2012 Section 319(h) funds. Once the award is received from EPA, IDEM plans to fund seven projects that will be working on developing and/or implementing WMPs. Most of the projects will begin early next year. A list of all 319(h) projects open during this fiscal year is located in Appendix C. Locations of both Section 319(h) and Section 205(j) projects funded from FFY 2006-2011 are shown on a map in Appendix A.

Each year grant applications are submitted by project sponsors, reviewed by a committee, and selected for funding based on the Nonpoint Source Program's priorities and the quality of the proposal. The program focus has changed over the years from funding many smaller projects, to funding fewer, better quality projects with a greater opportunity for showing water quality improvements. In addition, more emphasis is being placed on project partners and documentation of their commitment to the project in the grant application. As groups are learning, strong partnerships are a key to project success (see the Lessons Learned section in this report). Also, more projects are now implementing watershed management plans and utilizing more 319(h) funds to implement on-the-ground BMPs in their watersheds. This all means that there are better projects doing more implementation and eliminating more NPS pollution. There are currently thirty-two open or pending 319(h) projects (not counting FFY 2012), of which twenty-two are implementing watershed management plans and installing BMPs in critical areas of the watershed.

Projects are administered through grant agreements that spell out the tasks, schedule and budget for the project. Projects are normally two to three years long and work to reduce nonpoint source pollution and improve water quality in the watershed through education and outreach designed to bring about behavioral changes and encourage BMP implementation; development of WMPs that meet EPA's required nine elements; and implementation of WMPs by means of a cost-share program to implement BMPs that address the water quality concerns outlined in the WMP. IDEM Project Managers work closely with the project sponsors to help ensure that the project runs smoothly and the tasks of the grant agreement are fulfilled. Site visits are conducted at least quarterly to touch base with the project, provide guidance and technical assistance as needed, and to work with the grantee on any issues that arise to ensure a successful project close-out.

Specific project information for all Section 319(h) projects is entered and maintained in EPA's Grant Reporting and Tracking System (GRTS) database. GRTS enables EPA and states to demonstrate the accomplishments achieved with the use of 319(h) grant funds. The data entered into GRTS is also used by EPA to respond to inquiries received from Congressional committees, the White House, and various constituent groups. Project information that may be found in GRTS includes the project schedule, budget, description, type of BMPs implemented, location of BMPs, estimated pollutant load reductions, and progress reports. The public may view this information on the GRTS Home Page.

Fifteen Section 319(h) projects closed this fiscal year including two planning projects; ten implementation projects; one assessment project; and two Nonpoint Source Program support projects. Two of these projects are highlighted in the Project Highlights section of this report. Summaries of all fifteen projects may be found in Appendix E. Final reports and products from these projects are included as an attachment to this report, and a list of final reports is also included in Appendix F.

Nonpoint Source Grant Program Focus

In an effort to more efficiently meet our Nonpoint Source Program goals, coordinate with the TMDL Program and its efforts to identify and reduce nonpoint source pollution, and focus more of the Section 319(h) funds on impaired waters, IDEM identifies priority projects for Section 319(h) funds each year. The focus of the Program for FFY 2012 was:

- Watershed planning and/or implementation in watersheds with one or more impaired waterbodies that have an approved Total Maximum Daily Load (TMDL) Report.
- Watershed planning and/or implementation in watersheds that include waterbodies in Category 5A or 4A of Indiana's 2008 Integrated Water Monitoring and Assessment Report.
- Implementation of watershed management plans that meet IDEM's 2003 [DOC] or 2009 Watershed Management Plan Checklist.
- Projects that support the mission of the sponsor and have a statewide applicability for water quality improvements or capacity building at the local level.

A Geographic Information System (GIS) map located in Appendix B shows the relationship between TMDL development and watershed management activities in the state. It also shows the areas in Indiana where there are watersheds with nonpoint source impaired waterbodies as listed in the 2012

303(d) List of Impaired Waters. Targeting areas for watershed planning with developed TMDLs helps expedite the planning process since groups can use information in the TMDL regarding watershed nonpoint source problems, sources, and needed load reductions. This will be especially helpful to groups when the new TMDL Template is used to develop the TMDL (see the TMDL Template section of this report).

All of the seven Section 319(h) projects that are planned to be funded with FFY 2012 funds address one or more of the Nonpoint Source Program priorities. Six projects are focused on implementing watershed management plans and one project is developing a watershed management plan (and will begin implementing that plan when approved) in a watershed with 303(d) listed waters. Four of the watersheds have TMDL Reports.

IDEM and EPA believe that developing and implementing a comprehensive watershed management plan is an effective way to focus efforts and resources on a watershed and its particular problems, and to implement solutions to those problems. All new watershed management plans being developed must meet the required elements of IDEM's 2009 *Watershed Management Plan Checklist* before they can be implemented. The checklist incorporates EPA's nine required components of a watershed-based plan, and also comes with comprehensive guidance on IDEM's Nonpoint Source Program expectations, as well as examples and direction on how to meet those expectations.

Organizing a group to develop a watershed management plan that meets the required elements can be a daunting task. To help groups develop watershed management plans, IDEM developed the *Indiana Watershed Planning Guide*. This guide was revised in late 2010 to better serve our customers with new information, lessons learned from grantees, and updated links to tools and support. In the watershed planning process, local stakeholders join forces to develop watershed management plans at the hydrologic unit code (HUC) level that make sense for the particular conditions found in that watershed. The group identifies the problems, causes, sources, and critical or target areas in the watershed, then sets goals and chooses measures or BMPs to be implemented to achieve those goals. Critical areas are defined in IDEM's checklist guidance as areas where implementation can remediate nonpoint sources in order to improve water quality and/or mitigate the impact of future sources in order to protect water quality. Indicators are chosen and monitored to evaluate the effectiveness of the implementation efforts.

In addition to the resources listed above, additional help with the planning process is provided to watershed groups by their Project Manager and their Watershed Specialist (sometimes one in the same). These key IDEM staff meet with the local watershed coordinator, attend stakeholder meetings, help guide the group through the decision making process, and provide technical support on issues such as determining pollutant loads and/or load reductions needed for the plan. This extra guidance is invaluable as groups strive to develop a plan that meets IDEM's Checklist. Once the plan is complete, it provides a road map for how to allocate resources most effectively to address the priority water quality concerns in the watershed.

Best Management Practices and Pollutant Load Reductions

Once a watershed management plan is approved, a group may begin to implement the plan. The primary means for meeting the water quality goals in the plan is to implement best management practices (BMPs) in critical areas in the watershed as determined during the planning process. BMPs are structural, nonstructural and managerial techniques that are recognized to be the most effective and practical means to control nonpoint source pollutants, yet are compatible with the productive use of the resource to which they are applied. BMPs are used in both urban and agricultural areas. The sponsor of the 319(h) grant will implement a cost-share program to help landowners implement these needed BMPs. If the planning process was successful, landowners will be aware of the water quality problems in the watershed and the ways in which to reduce the nonpoint source pollution and will be ready to participate in the cost-share program.

Section 319(h) NPS implementation projects funded during FFY 2012 were successful at implementing BMPs across the state. Some of the BMPs implemented this fiscal year compared with last fiscal year include:

BMP	Approximate Number FFY 2011	Approximate Number FFY 2012
Cover Crop	2,808 acres	10,147 acres
Fence	55,745 feet	42,472 feet
Grassed Waterway	3,768 feet	2,721 feet
Heavy Use Area Protection	55,194 sq. feet	49,059 sq. feet
Nutrient Management	953 acres	3,300 acres
Pasture and Hay Planting	402 acres	214 acres
Pest Management	666 acres	0 acres
Residue Management, Mulch Till, No-Till	4,677 acres	1,643 acres
Streambank and Shoreline Protection	7,792 feet	608 feet
Watering Facility	1 each	9 each
Porous Pavement	2,650 sq. feet	5,000 sq. feet
Rain Barrels	47 each	14 each

Other BMPs implemented by landowners include diversion, pipeline, prescribed grazing, rain gardens, roof runoff management, stream crossing, and water and sediment control basin.

One important indicator of program and project success is the quantity of pollutants, such as sediment, phosphorus, nitrogen, and *E. coli,* that has been prevented from entering waterbodies as a result of BMPs implemented. Pollutant load reductions, in most cases, are estimated using the Region 5 Load Estimation Model. This simple Excel model provides a general estimate of pollutant reductions (sediment, phosphorus, and nitrogen) at the source level from structural and agricultural field practices and urban BMPs. Reductions achieved through practices related to nutrients (not tied to sediment), bacteriological, and pesticide management are not usually captured through this estimation method.

Another model or method for estimating these load reductions must be used. In addition to the Region 5 Model, the Spreadsheet Tool for the Estimation of Pollutant Load (STEPL) model also is available and is used by some groups in Indiana. This model calculates nutrient and sediment loads by land use type and aggregated by watershed. In a few cases, reporting pollutant load reductions may not be feasible because of the type of BMP installed.

Estimated load reduction data for each BMP implemented is submitted by the project sponsor with their invoice and entered by the IDEM Project Manager into an Access database at IDEM and the EPA GRTS database. Estimated load reductions vary significantly depending on many factors including the type of BMP implemented, the number of acres treated, land use, soil type, and in some cases, rainfall amounts.

Reported estimated load reductions for BMPs implemented this FFY are shown below. These numbers reflect a substantial increase from last year in the amount of many pollutants prevented from entering Indiana's waterways. The increase may, in large part, be attributed to the large increase in the number of acres of farmland implementing cover crops. Last fiscal year IDEM changed the policy on cover crops to reduce the 5 year maintenance commitment to one year to encourage farmers to utilize this important BMP. In addition, the number of acres utilizing nutrient management greatly increased. All load reduction data was obtained from IDEM's Access database.

Nonpoint Source Pollutant	Estimated Reduction FFY 2011	Estimated Reduction FFY 2012
Sediment	28,880 tons/yr	47,616 tons/yr
Phosphorus	33,434 lbs/yr	94,980 lbs/yr
Nitrogen	70,450 lbs/yr	141,709 lbs/yr
Biological Oxygen Demand	6,628 lbs/yr	29,542 lbs/yr
Chemical Oxygen Demand	1,977 lbs/yr	2,709 lbs/yr
Pesticides	490 lbs/yr	0 lbs/yr
Suspended Solids	5,970 lbs/yr	35,122 lbs/yr
Lead	5 lbs/yr	10 lbs/yr
Zinc	7 lbs/yr	14 lbs/yr
Copper	0 lbs/yr	1 lbs/yr

Cumulative total estimated load reductions achieved in Indiana from Section 319(h) projects to-date are:

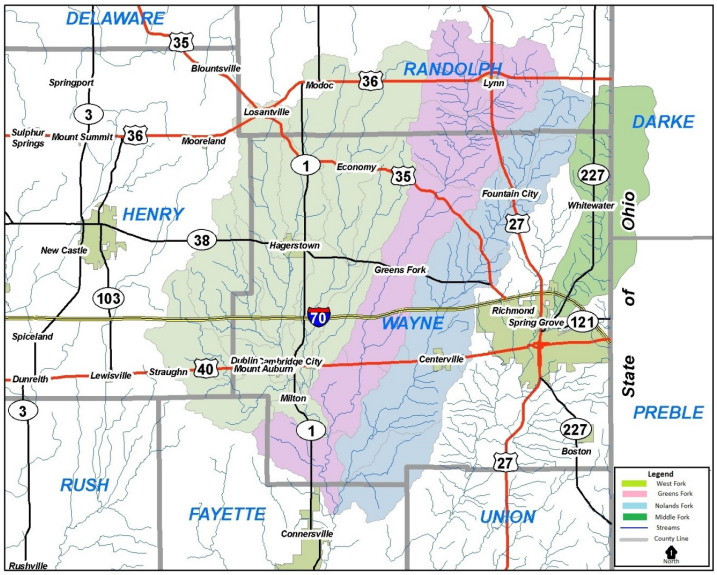
Nonpoint Source Pollutant	Estimated Reduction
Sediment	281,714 tons/yr
Phosphorus	493,170 lbs/yr
Nitrogen	805,029 lbs/yr

Project Highlights

Two grant projects that closed this fiscal year are highlighted here as examples of successful nonpoint source projects working to improve water quality through watershed planning, implementation of best management practices (BMPs), and education/outreach. The information below was taken primarily from the project's final report.

Whitewater River Initiative

The Wayne County Soil and Water Conservation District (District) worked in several watersheds as part of the Whitewater River Initiative project. The District continued implementing a cost-share program for BMPs outlined in the Middle Fork of the East Fork of the Whitewater River Watershed Management Plan. They also developed a watershed management plan for the West Fork Whitewater River watershed and began implementing a cost-share program for BMPs in that watershed. Both watersheds are located in the 8-digit HUC Whitewater watershed.



The Middle Fork of the East Fork of the Whitewater River watershed (shown on the map in dark green) consists of 48 square miles of land in East Central Indiana that drains into the Middle Fork Reservoir in Richmond, IN. The watershed includes about 16,000 acres in Wayne County and 2,000 acres in Randolph County in Indiana. Approximately 12,000 acres of the watershed are located across the state border into Ohio's Darke and Preble Counties. The Middle Fork Reservoir provides more than half of the city of Richmond's drinking water. The decline of the water quality in the reservoir has been a cause of major concern in recent years, particularly elevated atrazine levels and high sedimentation rates in the watershed. The watershed land use is predominantly agricultural with nearly 85 percent of the Indiana land used for row crops and pasture.

The West Fork of the Whitewater River Watershed (shown on the map in light green, violet and blue) consists of 263,939 acres of land with headwaters located in southern Randolph County. The dominant land use in the West Fork watershed is cultivated crops at almost 70%; with the top three crops being corn, soybeans, and wheat. In the mid 2000's, a group formed to address concerns about the water quality of the West Fork of the Whitewater. Since most of the river and tributaries are on IDEM's 303(d) List for *E. coli*, the group was concerned about the impact on the health of the watershed.

Accomplishments

The project worked with 26 different producers in the watersheds in both Ohio and Indiana to implement BMPs including conservation tillage, nutrient management, cover crops, pest management, grassed waterway, and stream crossing. Over 6,800 acres of land in the watershed were treated with BMPs or included in a newly developed nutrient management plan. Using the Region 5 Model, the amount of pollutant load reductions estimated from the BMPs installed total:

Phosphorus Reduction	Nitrogen reduction	Sediment reduction	Atrazine reduction
5,919 pounds/year	13,060 pounds/year	5,081 tons/year	1,039 pounds/year

With this grant, the project reduced the atrazine level in the Middle Fork Reservoir from 3-4 times EPA standards to just over 3.0 ppb based on data collected by the group. The Indiana American Water Company has been able to change the filter system from 2 filtering cycles down to 1 to remove atrazine.

The West Fork steering committee finalized a Watershed Management Plan for the West Fork Watershed and began implementing the plan in August 2011. The WMP provides guidance for future projects within the watershed boundaries and will help educate stakeholders about current conditions of the watershed. The watershed plan will be updated by the committee on an annual basis to include any changes, including work completed or currently in progress. The WMP has been distributed to local libraries and is available on IDEM's website at http://www.in.gov/idem/nps/3180.htm, or the Wayne County educational website at http://www.waste-not.org/.

The Whitewater Initiative project conducted various education and outreach activities to raise public awareness and participation in the Whitewater River Initiative Project. Activities included meetings, workshops, field days, reservoir and stream clean-ups, newsletters, press releases, brochures, special recognition for rural landowners or urban neighborhoods that implemented strategies to prevent nonpoint source pollution, storm drain labeling, and other education programs that communicated the need and importance of BMPs and promoted the importance of improving the quality of runoff water from urban areas. Approximately 4000 people were reached through the education and outreach programs.

Funding/Partnerships

The Wayne County SWCD utilized $284,105 in Section 319 funds and provided $204,385 in match for the project. Many watershed partnerships were established. These partners assisted with obtaining watershed information, advertising watershed events, providing technical assistance, or have given monetary support. Some of these partnerships include:

Community Partnerships

- Friends of the Middle Fork
- Wayne County Surveyor's Office
- Wayne County NRCS and FSA
- Richmond Sanitary District

Media Partnerships

- Palladium-Item newspaper
- Western Wayne News
- Nettle Creek Gazette
- Kicks 96, local radio station

- Indiana-American Water Company
- Youth Empowered to Serve
- Cities of Hagerstown and Greens Fork
- Wayne County Health Department

Future Activities

The Wayne County Soil and Water Conservation District will apply again for 319 funding to keep the progress going in the watersheds. The District is looking to continue the education plots used to showcase cover crops to local farmers and work with local implement dealers to showcase different tillage and farming operations.

Busseron Creek Watershed Management Plan and Implementation

In December 2007, The Sullivan County Soil & Water Conservation District received Section 319 funds to address water quality issues within the Busseron Creek watershed (BCW). The four year project called for the development of a watershed management plan (WMP) for the BCW, followed by implementation of a cost-share program to install best management practices (BMPs) in critical areas of the watershed.

The Busseron Creek watershed (HUC 0512011115) consists of 252 square miles of land located in Clay, Greene, Sullivan, and Vigo Counties in West-Central Indiana, in the 8-digit Hydrologic Unit Code (HUC) Middle Wabash-Busseron watershed. Busseron Creek originates in southeastern Vigo County, IN and flows in a southwesterly direction to a confluence with the Wabash River in southwestern Sullivan County, IN. Approximately 83% of the watershed is located in Sullivan County. The Busseron Creek Watersjed land use is overwhelmingly agricultural (58%) or forested (30%); however surface coal mining operations have significantly altered the watershed landscape.

The West Central Indiana Watershed Alliance (WCIWA) began as a coalition of interested parties dedicated to promoting and implementing best management practices in the Busseron Creek watershed and educating the general public about environmental stewardship. Their focus has now expanded to include Turtle Creek, Turman Creek, and Kelley Bayou watersheds.

Accomplishments

An active steering committee made up of representatives from many different organizations guided the development of the watershed management plan through the two year process. The final Busseron Creek Watershed Management Plan was approved by IDEM in 2010 and implementation of the plan began. The WMP is intended to be a guide for the protection and enhancement of the environment and

quality of the Busseron Creek Watershed while balancing the different uses and demands of the community on this natural resource. A copy of the plan may be found on IDEM's website at http://www.in.gov/idem/nps/3879.htm.

Promotion of the cost-share program for implementation of BMPs was on-going throughout the project through various means. Watershed Alliance staff and SWCD Board Members worked with implement dealers, seed dealers, and Co-ops to gain speaking time at their regularly scheduled clinics and field days to discuss BMPs. This partnership gave access to hundreds of growers who may not have been reached in a more traditional cost-share promotion event. In addition, cost-share promotion began early in the project while the WMP was still being developed. Because of these and other promotions, the Section 319 cost-share funds were allocated within 6 months of cost-share program approval.

In addition to its promotional strategy, Watershed Alliance staff worked with landowners to develop holistic conservation plans. By focusing on practices rather than programs, landowners and farmers were better able to see and attain larger goals, such as enrollment in the DNR Classified Forest and Wildlands Program or phased strategies to no-till/strip-till adoption. This coordinated effort made it easier for different agencies to work with each other to find the best programmatic fit for a landowner. The WCIWA was involved in the development of at least 85 different conservation practices for at least 37 different landowners or growers in the watershed and surrounding areas.

Five landowners in the Busseron Creek watershed took advantage of the cost-share program to buy Precision Ag equipment for pesticide management. Use of Precision Ag Technology can reduce overlap of fertilizer and chemical applications, reducing the amount of product applied - thereby reducing the amount of product entering surface waters. Three other landowners installed other BMPs in the watershed for a total land treatment area of over 1000 acres. Based upon STEP-L modeling and producer-supplied information, it is estimated that BMPs installed through this project with 319 funds have resulted in annual reductions in the Busseron Creek watershed of:

- Nitrogen: 3,418 pounds/yr
- Phosphorus: 1,095 pounds/yr
- Biological Oxygen Demand: 5,145 pounds/yr
- Sediment: 829 tons/yr
- Pesticides: 480 pounds of active ingredients/yr

Projects completed in the watershed, but funded outside of Section 319 funds resulted in reductions of:

- Nitrogen: 14,066 pounds/yr
- Phosphorus: 3,447 pounds/yr
- Biological Oxygen Demand: 16,021 pounds/yr
- Sediment: 5,095 tons/yr

The WCIWA continued its dedication to educating the general public about environmental stewardship and improving water quality by their involvement in many educational activities and programs

throughout the project. Education/outreach events that documented and promoted the work of the WIWCA included information booths at 7 public events; distribution of twelve newsletters to stakeholders; providing schools with water quality lesson plans through a "Rain Barrel Art" program in 2010-2011; over 20 workshops and presentations including a Moonlight Forestry Course with a cutting plan and educator workshops with a water quality focus; and over 25 print and radio items.

Funding/Partnerships

The Sullivan County SWCD utilized $230,060 in Section 319 funds and provided $163,695 in match for the project. Project Partners included:

- Agriculture Industry
- Coal Industry
- County Council Members
- County Redevelopment Commission
- Electric Industry
- IDNR – Division of Fish & Wildlife and Division of Reclamation
- Indiana State University
- Landowners and other stakeholders
- Sullivan Department of Transportation
- Vincennes University
- Local School Districts
- Natural Gas Industry
- Natural Resources Conservation Service
- Sullivan County Park & Lake
- Sycamore Trails Resource and Development Council
- United States Bureau of Land Management – Office of Surface Mining
- United States Geological Survey
- Indiana Association of Soil & Water Conservation Districts
- Regional SWCDs

Future Activities

In the Fall of 2010, the Sullivan County SWCD was awarded a four year Section 319 grant to continue implementing the Busseron Creek WMP and installing BMPs in critical areas of the watershed. The project runs through November 2014.

The WCIWA decided to expand their focus and pursue work in the Turtle Creek, Turman Creek, and Kelly Bayou watersheds. The long term goal is to provide connectivity of watershed-based efforts. This decision also coordinates with the Indiana Department of Natural Resources' Healthy Rivers INitiative, a partnership of resource agencies and organizations who will work with willing landowners to permanently protect 43,000 acres located in the floodplain of the Wabash River and Sugar Creek in west-central Indiana (www.in.gov/dnr/healthyriver/6580.htm). The WCIWA, through the Sullivan County SWCD, submitted a Section 319 grant application for FFY 2012 funding for the purposes of developing a WMP for these watersheds and launching an initial cost-share program modeled on the successful Busseron Creek program. The grant application is pending approval. For more information on this project and the WCIWA, visit www.busseron.org/.

Project Recognitions

Individuals and watershed groups in Indiana work long and hard to improve water quality in their watersheds and educate others about nonpoint source pollution. It takes the efforts of many people, many of them volunteers, to achieve the goals of the group and their watershed management plan. Most of the time, these efforts go unrecognized. Sometimes, however, an individual or a group will receive recognition for their efforts and achievements. This year, several groups were recognized on a state or national level for their efforts at reducing nonpoint source pollution.

- The **Clear Choices Clean Water** campaign, initiated in part with Section 319(h) funds, was nominated for a **Governor's Environmental Excellence Award** in the Outreach and Education category. This project is sponsored by the **Upper White River Watershed Alliance** in partnership with the **Tippecanoe Watershed Foundation.** More information on this campaign may be found at http://www.clearchoicescleanwater.org/.

- **Jasper County SWCD** won an **Indiana District Showcase Award** which highlights the successes of county Soil and Water Conservation Districts. Specifically, the honor demonstrates how SWCDs partner with traditional and nontraditional groups, businesses, government agencies, local officials and volunteers to achieve District conservation goals. The award is sponsored by the Indiana Conservation Partnership which includes the Indiana Association of Soil and Water Conservation Districts, IDEM, Indiana Department of Natural Resources, Indiana State Department of Agriculture Division of Soil Conservation, Purdue Cooperative Extension Service, State Soil Conservation Board, USDA Farm Service Agency, and the USDA Natural Resources Conservation Service. The award was for the "**Our Local Soil and Water Resources: Upper Iroquois Watershed Initiative, the On-Farm network and the Conservation Tillage Roundtable**".

- A **National Conservation Foundation District Conservation Award** (and $10,000) was presented to **Steuben County SWCD** for "on-the-ground" projects that touch local communities. The SWCD originally used 319 funds to start a rain barrel demonstration program as part of their Pigeon Creek Watershed project. Their success, due to hard work, perseverance, and the formation of successful partnerships with other organizations and landowners working toward the same goal, gave them the idea to partner with RISE Inc. to build rain barrels for use throughout the county. RISE Inc., which employs disabled workers in Steuben and DeKalb counties, will build the rain barrels. The award will be used to expand this rain barrel project, now called "**RISE up to Reduce your Storm Water…Communities Building Rain Barrels."**

Nonpoint Source Success Story

Section 319 Nonpoint Source Success Stories are stories gathered by EPA from states and territories about nonpoint source-impaired waterbodies where restoration efforts have led to documented water quality improvements. Many stories are about waterbodies that have achieved water quality standards for one or more pollutants and/or designated uses after having been previously included on the state's 303(d) list of impaired waters. This is one of Indiana's such stories:

Bull Run/West Creek Watershed: Planning, Educating Landowners & Installing Management Practices Restore Watershed
(Story taken from the EPA web site: http://water.epa.gov/polwaste/nps/success319/in_bull.cfm)

Nonpoint source pollution from agricultural and urban areas caused waters in the Bull Run/West Creek watershed to fail to support a healthy biotic community. As a result of this impairment, the Indiana Department of Environmental Management (IDEM) added Bull Run (in 2002) and West Creek (in 2008) to Indiana's Clean Water Act (CWA) section 303(d) list of impaired waters. Using CWA section 319 funds, project partners educated stakeholders about sound agricultural management and implemented best management practices (BMPs) throughout the watershed to control erosion and address urban and agricultural runoff. Recent monitoring data show that the Bull Run segment meets water quality criteria for healthy biotic communities. Therefore, IDEM will propose to remove both segments from the state's 2012 CWA section 303(d) list of impaired waters.

Problem

The Bull Run/West Creek watershed is in northwest Indiana's Lake County, in the Kankakee River Basin. Bull Run, a 6.04-mile-long stream in the watershed's headwaters, joins St. John Ditch to form West Creek, which flows 19.05 miles before emptying into Singleton Ditch. Bull Run lies within an agricultural area, while its confluence with St. John Ditch at West Creek lies within a predominantly urban area.

Data showed that areas of the watershed failed to support healthy biotic communities. Biotic communities are considered impaired on the basis of the narrative water quality standards and the fish Index of Biotic Integrity (IBI), a measurement of stream health based on multiple attributes of the resident fish population. An IBI score of 36 or greater is considered supportive of a healthy biotic community; a score below 36 indicates that the biotic community is impaired and requires development of a total maximum daily load (TMDL) or installation of improvement activities.

Bull Run data collected in 1999 revealed a fish IBI score of 0, and West Creek data collected in 2004 and 2005 showed an IBI score ranging from 16 to 32 (Figure 2). As a result, IDEM added both Bull Run (in 2002) and West Creek (in 2008) to the state's CWA section 303(d) list because of impaired biotic communities. No TMDL was developed for Bull Run/West Creek.

IDEM identified nonpoint source runoff as the main contributor to the biotic community impairment. Key pollutant sources in the watershed included runoff from row crops, improper manure spreading, livestock with direct access to streams, leaking and failing septic systems, stream bank erosion and urban stormwater runoff. Contributing point source pollutants included one municipal separate storm sewer system (MS4). That facility did not have a history of violating its MS4 permit, and it worked within the MS4 community to implement BMPs and identify outfall locations to address stormwater runoff.

Project Highlights

Since 1990 IDEM has supported nine CWA section 319 and 205(j) projects in the greater Lake County area. Project funds were used to develop a comprehensive watershed management plan, identify critical

areas and priority actions to improve water quality, and implement demonstration BMPs to control sediment loading and erosion in urban areas. The Indiana Department of Natural Resources (IDNR) hosted education events on urban runoff and its effects on water quality.

Between 1997 and 2004, IDEM staff used CWA section 319 funds to help local farmers implement conservation tillage BMPs and identify additional federal funding opportunities to support BMP implementation. Since 2004 the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) has funded staff to provide this kind of support to local landowners. These combined efforts have led to an 80 percent rate of adoption of conservation tillage practices among farmers in the watershed. Furthermore, a number of farmers have adopted no-till cropping practices, in which agricultural fields are left largely undisturbed from harvest to planting. The Town of St. John cleared silt from several ditches and reseeded the areas to prevent further erosion. The Town continues to speak with home-owners' associations about how to enhance the stormwater management within their respective subdivisions.

The Town has improved stormwater quality by maintaining replanted native vegetation along the Dyer and St John ditches and the tributary to Turkey Creek.

Results

Water quality monitoring data collected in 2011 show that IBI scores in Bull Run and West Creek have improved. The scores now meet or exceed an IBI score of 36, indicating that the biotic community is no longer impaired (Figure 2). Therefore, IDEM will propose to remove both segments (25.09 miles total) from the state's CWA section 303(d) list in 2012.

Partners and Funding

The Northwest Indiana Regional Planning Commission worked closely with the Lake County Soil and Water Conservation District; NRCS regional conservation staff; and a number of state and local partners, including IDNR, the Indiana State Department of Agriculture, and the Lake County Health Department. Partners contributed resources to support educating landowners, identifying pollutant sources and critical areas for potential water quality improvement projects, and conducting outreach to stakeholders. Since 1996 NRCS and the USDA Farm Service Agency have spent an average of $120,000 per year in the Bull Run/West Creek watershed to promote conservation practices, particularly controlled tillage practices.

Since 1990 IDEM has directed $484,787 in CWA section 319 funds and $111,800 in CWA section 205(j) funds, as well as $121,196 in local in-kind and cash match, to fund water quality projects in the Bull Run/West Creek watershed. Between 1997 and 2004, IDEM directed $1,009,364 of CWA section 319 funds to implement agricultural BMPs statewide, including within the Bull Run/West Creek watershed, and to fund IDEM staff working directly with farmers. The St. John MS4 has made a large capital investment—the purchase of three new global positioning system units, which will be used to enhance the existing outfall and BMP location data. More accurate and easily accessible information will help the Town of St. John make future decisions on identifying potential sites for BMP implementation.

WORKING TO IMPROVE THE NONPOINT SOURCE PROGRAM

IDEM's Nonpoint Source Program is actively working to expand state resources devoted to addressing nonpoint source pollution; develop planning and assessment tools to better gauge the effect of grant-funded projects; and fund projects to build watershed planning capacity within the state. This section of the report details efforts undertaken during this reporting period that will increase the effectiveness of the Nonpoint Source Program in Indiana.

Water Quality Monitoring Strategy

In 2009, IDEM submitted to EPA a nonpoint source monitoring strategy for Indiana. This strategy is aimed at collecting and analyzing data in a manner that enables IDEM to target limited resources for watershed planning purposes and to ascertain changes in water quality resulting from different OWQ program activities such as watershed planning and restoration funded through Section 319(h) and 205(j) grants and TMDL development and implementation. In October 2010, IDEM began a series of meetings to revise its overall Water Quality Monitoring Strategy for surface and ground waters. The need to fully incorporate nonpoint source monitoring activities into the plan was wholly recognized by the committee. As a result, in 2011 IDEM changed its probabilistic surface water quality monitoring efforts from a 5-year rotating basins approach to a 9-year rotating basins approach to free up resources for more targeted nonpoint source monitoring. See **Status of Indiana's Surface Waters** section for additional information on the monitoring strategy.

IDEM's nonpoint source monitoring includes two types of targeted monitoring: performance measures monitoring (monitoring for success, measured under the EPA's SP-12 measure) and baseline characterization monitoring. The 2012 sampling season was the second season under this new Water Quality Monitoring Strategy.

Targeted Monitoring for Success (MeasureW/SP-12 and Success Stories/WQ-10)

Part of the EPA's strategy for showing improvement in nonpoint source pollution impairment is through Measure W and Success Stories submissions by the states. In order to show improvement, states must show that:

1) One or more of the waterbody/impairment causes identified in 2002 are removed, as reflected in EPA-approved state assessments, for at least 40% of the impaired water bodies or impaired stream miles/lake acres in the watershed; OR
2) There is a significant watershed-wide improvement, as demonstrated by valid scientific information, in one or more water quality parameters or relate indicators associated impairments.

IDEM has chosen to use delistings (Option 1 above) as the mechanism for demonstrating water quality improvement to EPA. Targeted monitoring to measure water quality improvement as a result of nonpoint source grants was initiated in 2009. Monitoring for success continued this period in the South Fork Patoka (5120209070010, -020, -030, -040, -050) and Indian-Kentuck watersheds.

Baseline Monitoring Studies – Plummer Creek, East Branch Little Calumet, and Indian-Kentuck

Two conditions led to the decision by IDEM to conduct baseline watershed characterization studies in a limited number of watersheds each year. First, many watershed groups in Indiana lack the expertise to set up and use equipment to conduct a monitoring program that will provide complete baseline data for their watershed management plans. Secondly, in order to meet the data quality objective of delisting, IDEM needs to have a scientifically-defensible baseline to compare with follow-up monitoring. As a step toward meeting these two needs, IDEM pursued a one-year pilot project in the Plummer Creek watershed (HUC 0512020203) during 2011-2012 to collect baseline data for a watershed group that applied for watershed planning funds through the 319 grant program.

During the pilot project, IDEM used a modified geometric sampling design to select 30 surface water sampling locations in the 10-digit HUC. IDEM collected grab samples monthly for twelve months at each site for nutrients (ammonia nitrogen, total phosphorus, TKN, nitrate+nitrite,) and total solids (suspended and dissolved) analysis. *E. coli* was also collected at each site five times over a 30-day period in April and May 2012 to coincide with the recreational season in accordance with Indiana's Water Quality Standards. Field measurements (pH, DO, temperature, turbidity, and specific conductance) were also conducted and visual field observations (including weather conditions, stream conditions, and percent canopy) were recorded at each site during each sampling event. Stream discharge also was measured or estimated monthly at six selected sites to determine total stream loadings.

Sampling for the Plummer Creek baseline effort was completed in June 2012. The results are currently being analyzed to provide the local watershed group with a characterization of the watershed so that they may identify sources of impairment, set water quality goals, and designate critical areas for their watershed management plan.

In FFY 2012, IDEM began additional baseline studies in the East Branch Little Calumet (HUC 0404000104) and Indian-Kentuck (HUC 0514010102) watersheds. Based on lessons learned during the Plummer Creek pilot study, modifications were made in the study design for the Little Calumet and Indian-Kentuck baseline studies. The Plummer Creek study utilized a modified geometric design that allowed for sampling of nested drainage areas at bridges. The Little Calumet study also utilized the modified geometric design, but added targeted sites at potential point sources and where there appeared to be gaps in coverage. The Plummer Creek study included general chemistry parameters plus the macroinvertebrate biological community. In the Little Calumet and Indian-Kentuck watersheds, the fish community was added to the parameters sampled in Plummer Creek.

During the spring and summer of 2012, the majority of Indiana experienced drought conditions comparable to the Dust Bowl era. While the drought did not affect sampling in the Little Calumet watershed, 73% of site locations in the Indian-Kentuck watershed were dry at the end of June. No significant rainfall occurred in the watershed in July and as a result, no sampling took place in the Indian-

Kentuck watershed in July. Some rainfall occurred in early August and sampling is expected to resume in September.

Development and Demonstration of Outcome-Based Evaluation Framework for Indiana Nonpoint Source Program

In 2006 and 2008, Section 319(h) grants were awarded to Purdue University for a two-phase project to develop indicator frameworks to assess the social and environmental outcomes of watershed planning and implementation projects. The collection and monitoring of social outcomes of watershed planning and implementation in order to assess changes in knowledge, attitudes, and behavior of watershed residents and stakeholders was a new process to many community-based watershed groups. The environmental indicator framework was developed with a focus on the water quality effects of implemented management practices. Although many watershed groups had previously attempted to design management plans to show change in environmental outcomes, few have been able to complete their goal successfully.

Accomplishments for Social Indicator Framework for Phase I and II

In addition to working with IDEM staff and local environmental groups, the Social Indicator Framework was developed in cooperation with other states, EPA Region 5, and the Regional Water Quality Leadership Team. In Indiana, Purdue conducted participatory evaluations with representative pilot projects to test the measurement tools and the evaluation of project outcomes. The project was a success as demonstrated by the following:

- Purdue developed a set of core and supplemental social indicators for use in collecting social information throughout various watershed project phases.
- These indicators are available in the Social Indicator Data Management and Analysis (SIDMA) tool which allows projects to build their own surveys.
- As part of the Region 5 team, the Purdue developed the Social Indicator and Evaluation System (SIPES) for Nonpoint Source Management handbook that describes a step-by-step system using social indicators to help plan, implement, and evaluate nonpoint source management projects.
- Purdue provided training to IDEM and project level staff on how to collect and use social indicators.

Accomplishment for Environmental Indicator Framework for Phase I and II

Purdue collected and compiled a variety of monitoring information from: (1) a series of workshops and surveys with expert panel participants from federal, state, and local agencies, academia, watershed organizations, consulting firms, and non-governmental organizations; (2) monitoring protocols obtained from statewide monitoring programs; and (3) more than 41 watershed management plans and other 319 project reports. The information provided in this compilation, plus additional consideration including feasibility and cost of indicator collection and whether volunteers can measure indicators beyond a funded project, was assessed to determine the core indicators that IDEM will collect from any

watershed group funded to collect environmental data. Some of the accomplishments from this project include:

- The "Indiana Water Monitoring Inventory" - a product of the first activity to compile information on monitoring activities taking place throughout Indiana. This product includes both a document detailing the inventories and videos showing their functions.
- An "Inventory of Who is Monitoring What in Indiana." This site provides a list of programs that conduct statewide water monitoring, organized by parameters that are being monitored.
- A "Catalog of Monitoring Protocols Used by Indiana Agencies" - a compilation of existing protocols used by statewide monitoring programs.
- An Indiana Water Monitoring Council to be a "home" for the monitoring inventory.
- The Statewide Monitoring Conference entitled "Improving Indiana's Waters: Using Monitoring Data to Show Change" which was held at the Indiana Government Center and included more than 125 participants throughout the state for a full day of sharing experiences using water monitoring data to show watershed management success, discussing the barriers that exist, and developing strategies to overcome barriers.
- A list of core and supplemental indicators to be used by 319 projects collecting environmental data to measure success of watershed management activities, and an environmental indicator manual for nonpoint source projects and other groups that are collecting water quality data in Indiana entitled "Monitoring Water in Indiana ¨Choices for Nonpoint Source and Other Watershed Projects." For each indicator in the manual information is provided, if applicable, on what the indicator is; what the indicator indicates and sources that cause it; who is monitoring the selected parameter in Indiana and the methods used; a methods overview including scoring and metric explanations; typical levels in Indiana; protective levels including water quality standards; and resources needed (equipment, time, expertise and approximate costs).
- Training for IDEM staff and several members of Indiana's water monitoring community. Training webinars were also conducted by TetraTech during May 2010 entitled "Types of Monitoring & Assessment Data and What They Mean", "Which Data are Important and Why?", "Using Data to Support Watershed Protection & Restoration Decisions", and "Dealing with Uncertainty in Watershed Assessment".

Future Activities

Purdue will continue to keep these public web spaces up to date with current methods, sampling information, and protocol stewards. They will continue to promote the use of SIPES and the online SIDMA tool for projects to use social indicators for focused planning and implementation efforts and to evaluate these efforts over time. They will also continue program improvements, such as improving integration of SIPES data with implementation planning and state and federal reporting. There are plans to make instructional videos focused on the handbook, SIDMA, and data interpretation

Total Maximum Daily Load Program

Under the federal Clean Water Act (CWA) Section 303(d), development of TMDLs is required for all the impaired waterbodies that do not meet the water quality standards (WQS) for the designated uses to protect aquatic life, wildlife, and human health. The Nonpoint Source Program and the TMDL Program continue to work together to facilitate the integration of watershed management planning and implementation with the development of TMDLs and their implementation. The Section 319(h) Program priorities are developed in cooperation with the TMDL program in order to achieve the goals of both programs in the most efficient and cost-effective manner.

TMDL staff and Section 319(h) staff attend watershed meetings together and match watershed groups to grant funding and data resources. Section 319(h)-funded project sponsors are often key stakeholders in the development of TMDLs and provide data, meeting spaces, and stakeholder lists which have greatly improved the quality of TMDL reports. The development of TMDLs has, in some cases, spurred the development of new watershed groups – thirteen new watershed groups have been formed as the result of a TMDL (and were funded with 319(h) grants to continue the work started by the TMDL) and several watersheds where TMDLs were completed had 319(h)-funded watershed groups already established. TMDL staff has even worked with watershed groups to assist in the development of implementation projects designed to help meet load reductions stated in the TMDL report.

Indiana is divided into 1586 twelve digit watersheds and approximately 781 of these watersheds have TMDLs developed or scheduled to be developed by the end of 2011. This translates to 1141 TMDLs and of these, 32% are in various stages of implementation. TMDLs have primarily focused on *E. coli*, but recent TMDLs have been developed that quantify the impacts of nutrients and metals on waters with impaired biotic communities.

TMDL Template

In 2010, IDEM began working with TetraTech to create a Total Maximum Daily Load (TMDL) template that would meet the requirements of an approvable TMDL and meet the required 9 Minimum Elements of a Watershed Management Plan. The vision of the project was that a template could be developed so that future TMDLs could approximate a watershed management plan that meets the 9 Key Elements for Watershed Management Plans.

IDEM and Tetra Tech worked together to review the TMDL requirements and the Watershed Plan requirements and developed an Integrated Matrix and user overview to document where and how each requirement will be met. It was determined that there are some watershed plan requirements that cannot easily be met through the TMDL template, but recommendations on how a TMDL writer or watershed group can go above and beyond the TMDL requirements to meet the watershed plan checklist are included with the document.

The TMDL Template was completed in September 2011. The template requires TMDL reports to incorporate additional information that will better integrate the water quality monitoring, analysis, and load reductions of TMDL reporting with watershed management plans. The first TMDLs to utilize this

template are currently in process. Public meetings are being planned in October 2012 on the first TMDL report drafted on the template (Otter Creek in the Middle Wabash-Busseron watershed). This TMDL will be posted on-line when it is complete. Greater integration of IDEM's NPS and TMDL programs was achieved with completion of IDEM's TMDL Template.

Capacity Building to Reduce Nonpoint Source Pollution

IDEM is continually seeking ways to build capacity around the state in an effort to strengthen the effectiveness of groups working to achieve water quality goals and show measurable results. The objective is to promote the organizational development and growth of local watershed partnerships and stakeholders committed to improving and maintaining the natural and economic resources of their watersheds; and to provide funding, training, and technical assistance to these groups so they can better address watershed-based problems and help develop sustainable solutions. Following are examples of IDEM working with partners and using Section 319(h) funds to help build capacity statewide and at the local level to reduce nonpoint source pollution in the state.

Watershed Specialists

The Watershed Specialists (WSS) continue to work with watershed-oriented efforts throughout the state, emphasizing the provision of financial, organizational and technical assistance to local watershed efforts. Watershed Specialists have also taken on Project Management duties, amplifying their effectiveness to the state's NPS program. Key accomplishments for FFY 2012 are given below.

Capacity Building for Watershed Groups

The primary duty of the WSS positions is to assist local watershed groups with becoming successful and sustainable. To this end, WSS assisted approximately 100 active and developing watershed projects, sponsored by watershed groups, SWCDs and other entities on many levels including: meeting facilitation, reviewing draft and final watershed management plans, developing and reviewing grant proposals from several funding programs, obtaining water quality data and developing watershed maps, connecting groups with other local organizations and agencies to complement planning efforts, and assisting watershed coordinators with the overall watershed planning and implementation processes. This work includes helping groups move beyond dependence on 319(h) funding and integrating with local comprehensive plans. In addition, they have worked with large watershed basin partnerships to promote integration and prioritization of local, smaller scale watershed efforts.

The WSS continue to converse with other members of the Indiana Conservation Partnership to better coordinate and streamline watershed-related training and networking opportunities to enhance the service provided to watershed efforts in Indiana. In FFY 2012, watershed specialists participated in the following joint events for watershed leaders in Indiana:

- Watershed Specialists were invited to participate in the planning and conducting of the 2012 Indiana Association of Soil and Water Conservation Districts Annual Conference. Watershed Specialists moderated presentations on new Indiana NRCS Urban Practices, and septic systems information presented by the Indiana State Department of Health. Planning has begun for the

2013 IASWCD Conference, which proposes to include a number of capacity-building and nonpoint source-related topics.

- Watershed Specialists partnered with the Indiana State Department of Agriculture, the Indiana Department of Natural Resources, The Nature Conservancy, USDA's Natural Resources Conservation Service and EPA Region V to conduct a Great Lakes Restoration Initiative training workshop in the Maumee River watershed.
- Watershed Specialist served on a resource panel at a joint EarthForce GREEN/Hoosier Riverwatch event.

The WSS also continued to assist Purdue University with the Indiana Watershed Leadership Academy by sitting on their steering committee, reviewing participant assignments and providing feedback to participants, and attending their graduation and evaluating their class projects presented that day. Watershed Specialists also assist Purdue's webinar speakers by previewing webinar presentations several days beforehand and providing feedback to improve them before they are presented live. Additional information on the IWLA is presented below.

Internal Program Coordination

The WSS continued to work with other IDEM staff on joint projects to fulfill mutual goals, which included:

- Worked with others in the Watershed Assessment and Planning Branch to develop baseline studies and SP-12 targeted monitoring sites.
- Continued to work with Watershed Assessment and Planning Branch staff on the External Data Framework.
- Met with the Confined Animal Feeding Operation section to discuss how we can work together better to accomplish mutual goals.
- Completed the TMDL Template that provides greater integration of the TMDL's water quality monitoring, data analysis and load reductions with the needs of watershed groups writing Nine Elements watershed management plans.

External Program Coordination

The WSS worked directly with partner agencies to help strengthen efforts to address nonpoint source pollution through a variety of other programs. This included:

- Assisted in coordinating watershed-related topics at the IASWCD annual conference and moderated several sessions.
- Continued to coordinate with IDNR LARE staff on watershed planning and diagnostic study projects to meet 319(h) requirements in order to leverage funding and resources.
- Attended the Indiana MS4 Annual Meeting to network with MS4 coordinators interested in watershed planning.
- Continued promoting the Mitigation Matchmaker website developed by INDOT, IDNR, and IDEM.
- Worked with other agencies in the Indiana Conservation Partnership to continue developing a Training and Certification program for partner employees, including training in the design and

implementation of best management practices for water quality improvement and a possible watershed coordinator certification program.

- Worked closely with the Indiana Department of Natural Resources' Lake Michigan Coastal Program, Nonpoint Source Coordinator to address all outstanding elements of the LMCP's Coastal Nonpoint Source Management Plan. Anticipate that our work will culminate in full approval for the LMCP NPS Management Plan.
- Watershed Specialists worked closely with local groups and agency counterparts in Ohio and Michigan to develop watershed management plans for bi-state watersheds that meet checklists for both states.
- Watershed Specialists continued to participate in the Indiana Conservation Partnership's Pathway to Water Quality advisory committee to improve this Indiana State Fair exhibit that reaches tens of thousands of Hoosiers each year.
- WSS set up a half-day workshop with the United States Geological Survey to discuss how to access USGS data, points of contact and important websites, and how to use online tools to inform watershed management planning and other data-interpretation.

Public Presentations/Outreach

The WSS provided the following public presentations/outreach on watersheds and water quality:

- Wrote an article about the role of the watershed specialists for the Spring 2012 Indiana Lakes Management Society newsletter.
- Staffed a display at the Indiana Lakes Management Society annual conference
- Attended regional Indiana Conservation Partnership meetings to discuss the availability of 319 grants and watershed work in their regions.
- Participated in an IASWCD-sponsored panel discussion of grant opportunities and funders for watershed leaders in Indiana.
- Assisted in staffing the "Pathway to Water Quality" exhibit at the Indiana State Fair.

Training and Outreach

Indiana Watershed Leadership Academy

IDEM is continuing to partner with Purdue University using Section 319(h) funds to conduct the Indiana Watershed Leadership Program to meet the needs of watershed coordinators, agency staff, and others that want to become more effective watershed leaders. Leading the development of a scientifically-sound watershed management plan that actively involves, engages, and is supported by the community requires people who have broad skills, and know how to employ diverse tools and strategies related to watershed management.

The Indiana Watershed Leadership Academy (IWLA) was developed in 2005 by Purdue University in collaboration with numerous conservation partners throughout the State. The Academy responds to the critical need to build watershed management capacity in Indiana, documented through a survey conducted by Purdue of watershed volunteers and professionals throughout Indiana (http://www.ces.purdue.edu/waterquality/Survey_Report.pdf).

Accomplishments

Purdue celebrated the conclusion of the seventh class of the Indiana Watershed Leadership Academy in May 2012. Twenty-six participants from throughout Indiana with very diverse backgrounds including watershed coordinators, state and federal agency employees, MS4 operators, students, private citizens, consultants, natural resources educators, resource managers, city planner, county surveyor, local health departments, and non-profit representatives convened in January 2012 to begin face to face workshops and distance education on becoming more effective watershed leaders. Those who completed all components of the program received a Professional Certificate in Watershed Management.

Over the course of the 2012 Academy, they had many notable achievements including:

- Module assignment review – approximately 200 assignments are completed and reviewed by alumni each year. These modules focus on topics known to be important to watershed coordinators in effective planning.

- Web meetings – Purdue used innovative web conferencing technologies to keep participants in touch. Each participant received a webcam and met online every other week to discuss any issues with the current assignment and to introduce the new learning module.

- Face-to-face workshops – Purdue held three workshops that emphasize topics that people need such as water monitoring data interpretation, identifying critical areas, and selecting Best Management practices.

- Developing tools – as Purdue works with watershed groups they have focused efforts on tools to address needs. For example, the load calculation tool available at https://engineering.purdue.edu/~ldc/LOADEST/ and the HUC Finder available at http://inwater.agriculture.purdue.edu/HUC/.

Within the Indiana Watershed Leadership Program, Purdue began a monthly webinar series to build on the educational content provided during the Academy. This webinar series is available to Academy graduates and others throughout the state. The webinars are recorded providing on-demand 24/7 access. Webinar topics to date include:

- Reducing Fluvial Erosion Hazards
- Strategies for Watershed Meetings that Lead to Results
- Urban Green Practices
- The New Water Quality Monitoring Manual for Nonpoint Source Projects
- Alternative Ditch Design and Management Strategies
- Website Design
- Modification of Indiana's Hydrologic Cycle
- How Watershed Projects can Promote Soil Health
- Permitting for Wetlands and Streams
- Water Quality Monitoring by Watershed Groups and Agencies
- Indiana's Water Shortage Plan

Outcome-based evaluations each year have been used to enhance the content, improve the overall experience, and demonstrate the impact on watershed management. The Academy has received very strong evaluations from participants. When asked to provide specific comments regarding the overall Academy, participants indicated:

- "The Academy is constantly trying to stay current with new technology while educating participants on the tried and true. It is a valuable resource for getting all kinds of tools added to your tool belt."
- "A wide variety of backgrounds of the participants leads to exposure of a lot of interesting and different points of view and ideas."
- "Despite knowing a lot about watersheds in general, I was surprised to learn a whole lot in the Academy."
- "Networking. The reminder that you are not out there alone, being able to bounce ideas off of colleagues and share stories of successes & failures and learn from other's experiences."

In the past seven years, 197 people have participated in the Academy, through which they have learned skills in organization and communication, watershed technology, GIS, policy, watershed science, and leadership.

Future Activities

The 2013 Indiana Watershed Leadership Academy face-to-face sessions are scheduled, and the application period will open in August 2012. The Advisory Committee will continue to bring statewide input and support to the Academy. Due to the success and continued interest in this program, Purdue has been able to secure additional funding to maintain the Academy through 2015.

Indiana Conservation Partnership Training and Certification Program

In September 2009, IDEM participated with other members of the Indiana Conservation Partnership (ICP) in initiating a Training and Certification Program (TCP) to meet staff training and certification needs across the Partnership. During the past year, the ICP TCP has inventoried all Partnership staff (including IDEM Nonpoint Source staff and Soil and Water Conservation District-based Watershed Coordinators and watershed management plan implementation technicians) to identify the most pressing training needs and to prioritize trainings that will be offered in the near future as part of this program. The IDEM Nonpoint Source program hopes to gain the following benefits from the ICP TCP:

1) Training for program staff on best management practices that will make cost-share practice approval decisions more efficient;
2) Increase in number of District employees who are competent to plan for and design best management practices to meet the goals of Indiana's watershed management plans; and

3) Certification program for Watershed Coordinators that will result in increased recognition of these staff by their employers so that compensation is sufficient to decrease the level of turnover currently seen in these positions.

IASWCD Conservation Development Specialist

Restricted budgets, increased community size and ever-changing environmental risks place a significant burden on local Soil and Water Conservation Districts' (SWCDs) and watershed groups' resources. While SWCDs across Indiana are the core of soil and water conservation planning and initiatives; unfortunately, the most capable of watershed groups and SWCDs in Indiana are historically limited by a lack of sustainable funding at their disposal to carry out district business plans and watershed management projects.

Disparity among district offices with the level of understanding, comfort and skills in funding and resource development (fundraising, grant writing, public support, marketing, public relations, collaborations, partnership-building, etc.); program development and implementation; leadership training and strategic planning, leave some districts at a substantial disadvantage with the completion of water quality management/implementation and business plans. Those districts and watershed groups with unfunded watershed management plans (WMP) would benefit from the capacity building tools and features proposed in the IASWCD's Nonpoint Source Section 319 Grant.

The IASWCD's established Conservation Development Specialist position 1) empowers watershed groups and SWCDs to seek out and leverage immediate and future funds to supplement and sustain clean water initiatives and watershed practices within Indiana's 92 counties; 2) assists, supports and/or connects IDEM 319 grant recipients with sustainable project funding and/or leveraging of current funds; 3) enhances capacity building through training and support in fund development and grant writing and tracking, (establish materials and procedures to document clean water initiative successes); 4) communicates the impact and value of clean water at the local levels; and 5) develops local and statewide support for the work and mission of SWCDs and watershed groups. This capacity building effort entails raising the level of awareness and the abilities of SWCDs and watershed groups to address issues related to nonpoint source pollution in an effective and efficient manner.

ISDA Technical Assistance

Many state and federal initiatives and programs are in place to reduce nonpoint source pollution in Indiana. However, a persistent obstacle to the installation of nonpoint source mitigating practices in Indiana has been a lack of man-power to “sell” and design best management practices for agricultural land. One initiative IDEM has been involved in to solve this problem is the Indiana Conservation Partnership’s Training and Certification Program, which is described above. However, this program is still in its infancy and a stop-gap measure is needed until the ICP TCP is consistently able to train additional technical staff. In response to this need, in 2010, IDEM funded a proposal from the Indiana State Department of Agriculture to hire 3 technical staff positions to serve in watersheds in the Wabash Basin with known water quality issues to implement state and federal agricultural programs aimed at reducing sediment and nutrient runoff to Indiana’s surface waters. As a result of this project, it is expected that

there will be an increase in best management practices placed on the ground, resulting in an overall improvement in water quality.

Lessons Learned/Adaptive Management

Part of improvement and program development is taking time to evaluate existing processes and identify ways to do things better. For the Nonpoint Source Program, this involves getting input and lessons learned from our grantees, our staff who manage these projects, and our partners. Key lessons learned by our grant projects are passed along to other watershed groups by IDEM's Watershed Specialists and Nonpoint Source staff throughout the grant process.

Lessons Learned By Section 319(h) Grant Projects

A requirement of all Section 319(h) grant projects is to document project successes, failures, and lessons learned in their Final Report. This information serves three purposes. First, it helps the grantee improve and use this knowledge when planning for future work in the watershed. Second, it helps IDEM improve, where applicable, its processes and policies. Third, it allows other watershed groups to learn from the successes and failures of their peers. Following are excerpts from projects' final reports on their lessons learned:

General

- The project experienced problems due to staff change over. This was a problem shared by both the project coordinator and the IDEM project management staff. Due to the fact that these changes occurred at virtually the same time, it created a void in continuity/project advancement and a break-down between the first two years and the last one.
- The Watershed Leadership Academy was a huge learning opportunity for the watershed coordinator. It gave her the opportunity to talk with other 319 watershed coordinators. We wish we could have sent her before the project started.
- Through this grant we have learned that it still takes a personalized approach to conservation to make things work at the local level.
- There are various regions of the state with similar thoughts and actions: some locations of the state are progressive and always looking for something new to try, where other parts of the state want to keep doing things like they always have been and are not willing to entertain the idea of something new. Others who are not captured in the above two categories are in the mindset of "seeing is believing" and want to see things for themselves.
- Our watershed area is both too big and too small. No matter which partner group or individual we talked with, they all wondered why their area of the Wabash River basin was not included in our planning process. The Wabash River Enhancement Corporation (WREC) received numerous requests to expand our planning area to include their favorite waterbody. At the same time, 478 square miles is a huge area - one in which we won't address all water quality problems in short order. Maintaining open dialogue with partners interested in improving water quality in areas where we are not currently working will help establish long-term planning efforts and improve all of our future activities. Working through individuals that have started the implementation

process is key to reaching other stakeholders – using these individuals as our voice will allow us to reach more audiences within this watershed than our singular staff can alone.
- The number one lesson learned is to do a watershed project in a watershed that actually has stakeholders who are willing and able to fix a water quality issue.

Education and Outreach
- A well-placed educational message can reap large rewards.
- It is important to utilize any and all communication sources to get out messages and reach Indiana citizens, including the Internet, Face book, conference/festival participation, e-mail, and even the telephone. Print media is, unfortunately, of less importance in today's society.
- It is difficult to get teachers to attend workshops due to school budgets. It may be easier to take a workshop or program to them (for example how to use an outdoor lab), but the cost for substitute teachers is still a problem.
- Having a good contact person at the local newspaper would be very helpful to advertise workshops and events – trying to hold events without local newspaper support is very difficult.
- Watershed management planning is all about the people! Their interest is fickle – meaning you can catch it with one activity or event but may not hold it for long. Using that interest to its fullest ability is necessary to successfully engage individuals long-term.
- When working in two watersheds, it is vital to get local groups and the general public more involved.

Partnerships
- There is a need to do more outreach to the other local SWCD's to get them more involved at the beginning of the project. With having the local SWCD's involved early, this would be very helpful in getting volunteers and other groups involved and excited about the watershed project. This would also been helpful to promote the project and why we are doing it.
- The more partnerships and contacts the project has the more successful it will be – the more people you know or know you the easier it is to schedule workshops, obtain good speakers, and assist with other projects.
- Expanding the cost-share program's reach has been made possible by partnering with other organizations.
- There were some tasks that took more time than we realized and caused some un-needed stress. We learned the power of networking and relationship building. This became especially true when it came to our cost-share program.
- Partnerships are required for long-term success, and development of these partnerships takes time.
- Volunteers make or break a project.
- The relationship with the Amish community needs to improve. This way we can work with them to install Best Management Practices and to show them the importance of water quality in our local community. As a community, we need to build some trust with our neighbors. And a good working relationship with the bishop is a place to start.

Implementation

- It took much longer for landowners to move forward in making decisions than we thought it would, or should. Then once the landowner made a decision to participate, it took longer than expected to actually get designs complete and in place so the installation could begin.
- Three years is a very short period of time for a project of this nature. Much good can be accomplished in three years, but selling a landowner on a new BMP or a change in management practices may require several years of effort. There are landowners just now signing up for BMPs that we have tried selling them on for three years.
- We had thought that 319 funds would be a good compliment to Farm Bill conservation programs offered by the USDA, but this turned out to rarely be the case for us. The Farm Bill program's cost share ratios are such that it is difficult to add 319 funds to a project and maintain the twenty five percent match required of the participant by the 319 program. We had only one project where 319 funds were vital to the project's success, a large EQIP project which was going to cost the landowner a considerable sum out of pocket and would not have been possible without the addition of 319 funds.
- Future 319 grant proposals will be structured to minimize funds spent on staff and maximize the funds available for cost share. This 319 grant was by necessity written to cover much of the cost of a watershed coordinator and this seemed to act as a constraint on our ability to be creative and flexible in the use of cost share funds while maintaining the overall sixty-forty match ratio.
- We had several instances where a tenant farmer wanted to enroll in the cost share program to control or repair gully erosion but was unable to do so because the landowner was unable to commit the necessary match. In most cases the landowners were elderly and of limited means in spite of their status as landowners: land rich and cash poor, as the saying goes.
- The importance of a grower or landowner to fully understand a BMP or conservation program cannot be understated.

Monitoring

- An extensive water quality monitoring program is probably not a wise use of implementation funds. There may be some value in monitoring on a field scale to verify water quality improvements attributable to a specific BMP or series of BMPs, but it would be a rare set of circumstances that would allow for this. We know that BMPs, by definition, will improve water quality and we can be confident in this even if those improvements are not apparent on a watershed scale.
- The water monitoring was a big under taking. Between the two watersheds, there were 27 sites that were being monitored. With the watersheds being a larger area, it was difficult to get them done in a timely manner. It was also difficult to schedule volunteers to help get this large of an area done as these watersheds are.
- We should have gotten QAPP submitted in a timelier manner.

Adaptive Management by IDEM

The following items were previously determined by IDEM Project Managers and/or other staff to need improvement or program/policy changes. These determinations were based on the communicated

needs of and lessons learned from grant projects, and staff ideas about how to improve the Nonpoint Source Program. Following are the items and a status of their progress.

- Work more proactively with watershed groups on the development of watershed management plans to identify possible problems or roadblocks to success.
  - ✓ Complete - A TMDL Template has been finalized. The template requires TMDL reports to incorporate additional information that will better integrate the water quality monitoring, analysis, and load reductions of TMDL reporting with watershed management plans. The TMDLs will now give watershed groups much more information to utilize and will provide a good foundation for drafting a watershed management plan.

- Establish a formal policy, requirements, and process for updating watershed management plans. Develop guidance for WMP revisions.
  - ✓ Due to other priorities and activities, including the items listed here and the priorities for FFY 2013, it was determined that this is not a priority at this time.

- Develop a comprehensive monitoring policy for planning and implementation projects.
  - ✓ In Process – The new Water Quality Monitoring Strategy calls for IDEM to provide baseline monitoring for one year for certain planning projects. The first monitoring project has been completed and the process is now being reviewed by IDEM.
  - ✓ Complete - IDEM partnered with Purdue University to develop environmental indicators for showing improvement. See Development and Demonstration of Outcome-Based Evaluation Framework for Indiana Nonpoint Source Program under the "Working to Improve the Nonpoint Source Program" section of this report. Groups desiring to conduct their own water quality monitoring, must read and follow the document.

- Develop standardized Policy Documents and procedures for disseminating new policy decisions and clarifying gray areas.
  - ✓ In Process – documents and procedures have not been finalized.

- Develop a monitoring guidance for watershed groups that includes environmental indicators that will be developed through the Environmental Indicators Project
  - ✓ Complete - IDEM partnered with Purdue University to develop environmental indicators for showing improvement. See Development and Demonstration of Outcome-Based Evaluation Framework for Indiana Nonpoint Source Program under the "Working to Improve the Nonpoint Source Program" section of this report.

- Integrate the Section 319(h) program with other state and federal programs.
  - ✓ In process – IDEM is beginning the process of updating the Indiana Nonpoint Source Management Plan. Integration will be addressed with program partners during the development of the plan as meetings and discussions are held to seek input.

- Actively work to bring in information and lessons learned from other state Section 319(h) programs, as well as national workshops.
    - ✓ In process – Staff attends national meetings and workshops when possible and brings back pertinent information.

- Compliance/Enforcement - verification of installed BMPs and enforcement if necessary.
    - ✓ In process – Staff visually checks BMPs as time allows, but a formal process has not been developed.

- Training on how to Calculate Load Reductions and use Models
    - ✓ In process – The TMDL program staff trained the NPS staff to use the online Load Duration Curve model, as well as the in-house models, for calculating load reductions. Professional training on the STEP-L model for NPS staff is scheduled for late September 2012.

- Improve Proposal Development Process
    - ✓ Complete and ongoing – The four Watershed Specialists continue to work closely with groups on developing good, competitive proposals for NPS grant funds. Their work has resulted in higher quality of proposals being submitted.

- Improve 319(h) Proposal Review Process – to help ensure success of projects, measurable results, and meeting program goals. Clarify process to potential grantees.
    - ✓ In process – new application forms were finalized in 2012 to help make the information requested more relevant to the pertinent review criteria. IDEM is in the process of revising the application review sheets used to review and rank 319 applications to better reflect our priorities so the review process is more focused and the proposals rank appropriately. The application instructions were revised to reflect the changes.

- Create a comprehensive list of 319 eligible BMPs to help 319(h) recipients when developing their cost-share program.
    - ✓ In process – a comprehensive list of 319(h) fundable BMPs has been developed and is in the final stages of completion.

- Training for project managers in Conservation Planning.
    - ✓ In process - this should be available through the ICP Training and Certification Program that is being developed. NRCS is spearheading the Conservation Planning portion of this program, which has not yet been scheduled.

- Project accountability
    - ✓ Complete and ongoing - With the completion of the Environmental Indicators framework and the "Monitoring Water in Indiana" manual, 319 projects have an established list of parameters that should be measured during the planning portion

of their project. These results can be entered into the Assessments Information Management System (AIMS) database and measured against post-implementation monitoring to flag watersheds that should be revisited by IDEM targeted monitoring staff. IDEM's monitoring efforts can then confirm or invalidate water quality improvement for NPS Success Stories or Measure W (SP-12) submissions.

- Provide more guidance on how to determine critical areas for watershed planning
  - ✓ Due to other priorities and activities, including the items listed here and the priorities for FFY 2013, it was determined that this is not a priority at this time.

- Determine criteria for which projects receive baseline monitoring from IDEM
  - ✓ Complete - IDEM has determined that watersheds selected for baseline monitoring must be chosen from NPS planning proposals received in a given year. Priority watersheds will have ranked high enough to be funded; the watershed group will not have the capacity to monitor at a level equivalent to IDEM's baseline monitoring; and, if possible, project monitoring will be coupled with other monitoring performed by IDEM (e.g. monitoring for TMDL needs, probabilistic monitoring).

- Determine criteria for projects that should receive follow-up monitoring for success
  - ✓ Complete - IDEM will monitor watersheds that have baseline data to which new monitoring events can be compared to show change; have received 319 implementation funding 5 or more years prior to the season in which they are to be sampled and; that are reasonably expected to show change in one or more parameters for which the water was listed on the 2002 303(d) list.

For FFY 2013 IDEM plans to continue adaptive management in the following areas:

- Update the Indiana Nonpoint Source Management Plan.

- Update NPS Program policies and priorities based on the recent Government Accounting Office study.

PARTNERS IN WATER QUALITY

The work that IDEM's many partners do to help assess and reduce nonpoint source pollution is a vital component of how Indiana addresses this environmental challenge. Increased communication and partnership building will help assure that these efforts are complementary and that resources available in Indiana are used in a manner that allows for maximum returns.

Natural Resources Conservation Service

The NRCS mission statement is "Helping People Help the Land." Through financial and technical assistance, NRCS works toward a landscape with productive agriculture and a high-quality environment. The guiding principles of NRCS work are service, partnership, and technical excellence. NRCS' primary customers are people who make decisions about natural resource use and management on non-federal land. This includes governments with a responsibility for natural resource use and management.

NRCS assists landowners in Indiana to develop conservation plans and provides technical assistance and advice about natural resource management. NRCS helps install conservation practices and systems that meet technical standards and specifications. NRCS also provides financial assistance through incentive programs, easement programs, grants, and stewardship payments. NRCS' standards and specifications are utilized for many of the cost-share practices implemented through 319(h) grants. NRCS Farm Bill conservation programs are utilized as one funding source for implementing local watershed management plans.

NRCS' strategic plan is focused on nonpoint source pollution issues in several areas. For example, some of the national goals for NRCS include "Clean & Abundant Water" and "High-Quality Productive Soils".

For Federal Fiscal Year 2011* (Oct. 1, 2010 through Sept. 30, 2011), NRCS programs in Indiana that support nonpoint source pollution efforts included:

Wildlife Habitat Incentive Program – Approximately $513,000 provided to landowners to develop and improve wildlife habitat on private lands.

Environmental Quality Incentive Program – Approximately $19.1 million provided to agriculture producers to implement structural and management conservation practices that optimize environmental benefits on working agricultural land.

Wetlands Reserve Program – Approximately $14 million provided to landowners to protect, restore, and enhance wetlands on their property.

Conservation Security Program – Provided $683,000 million to landowners to promote conservation on private working lands.

Grassland Reserve Program – Provided $435,000 to landowners to promote conservation on grasslands.

Healthy Forests Reserve Program – Provided $1.5 million to landowners to preserve forestlands.

*Final program numbers for FFY 2012 are not available until after October.

Indiana Association of Soil and Water Conservation Districts

The mission of the Indiana Association of Soil and Water Conservation Districts (IASWCD) is to represent Soil and Water Conservation Districts (SWCDs) as one voice, and to assist the leadership of local SWCDs through coordination and education for the wise use and management of our natural resources.

One of the many ways the IASWCD promotes the wise use of Indiana's natural resources is by providing information and outreach in support of statewide efforts to develop and enhance Indiana's watershed programs that help address nonpoint source pollution. Section 319 grant funds are used to staff a Conservation Development Specialist (CDS) position at the IASWCD that serves as a liaison with IDEM Office of Water Quality staff to promote and enhance watershed management efforts.

The Conservation Development Specialist offers assistance to local organizations (primarily Indiana Watershed Initiatives and Soil and Water Conservation Districts) with capacity building tools and features. These activities include Resource Development Workshops; as-well-as, support and assistance provided to individual SWCDs. Based on need and logistics, the individual support and assistance is provided via email, phone and through personal visits.

Through the IASWCD and IDEM partnership, intensive sessions on Social Marketing were offered during the 2012 Annual Conference of Indiana Soil and Water Conservation Districts. The Social Marketing sessions' target audience included SWCD and watershed staffs and other partners in conservation. Additionally, the IASWCD awarded nine SWCD Supervisors with full scholarships to the 2012 Annual Conference; thus, providing further opportunities for education for the use and management of Indiana's natural resources. The CDS is actively involved in the planning and implementation of the Annual Conference Capacity Building Sessions and the new scholarship opportunity.

The IASWCD *Conservation Update*, a biweekly electronic publication, communicates issues, events and resources in watershed management statewide. The *Conservation Update* is an excellent tool to acknowledge successful watershed practices through the Annual River Friendly Farmer Awards and the District Showcase Awards. July 2012, Indiana's SWCDs nominated fifty-five River Friendly Farmers for their exemplary "river friendly" practices. The Indiana State Fair Farmer's Day provides an excellent setting for the award presentations. The Indiana Conservation Farmer of the Year and Friend of Conservation awards are presented annually during the Annual Conference of Indiana Soil and Water Conservation Districts. Acknowledgment through these venues, local and statewide media and the *Conservation Update*, offers additional opportunities to increase public awareness and supports successful nonpoint pollution reduction practices.
The *Development eLetter* is a monthly development resource provided to SWCDs, watershed groups and conservation partners. The CDS researches funding sources and disseminates this electronic

publication, providing up-to-date funding opportunities and educational resources for Indiana's SWCDs and watershed groups.

The newly created Conservation Resource Development web page can be accessed through the IASWCD web site and the *Development eLetter* serves as a link to this resource. This web page is updated on a continual basis and provides pertinent development and education resources for Indiana's watershed groups, SWCDs and conservation partners. The web page features funding and grant information; organizational and professional development opportunities and a calendar of events. The Conservation Resource Development web page can be accessed from the IASWCD web site: www.iaswcd.org and located through District Tools/Resources: http://www.iaswcd.org/development-current.html

Indiana State Department of Agriculture
Division of Soil Conservation / Indiana State Soil Conservation Board

The ISDA - Division of Soil Conservation works along with the State Soil Conservation Board to enhance the stewardship of Indiana's soil and water resources. This is done by providing face-to-face, on-the-land technical and financial assistance for implementing conservation practices, supporting Indiana's 92 Soil and Water Conservation Districts, and promoting the opportunities and benefits associated with caring for our soil and water resources.

The Division of Soil Conservation (Division)/State Soil Conservation Board (SSCB) employs Resource Specialists to directly assist landowners with the planning and implementation of conservation practices addressing specific soil and water resource concerns. Resource Specialists work in regional Conservation Implementation Teams (CIT) alongside staff from the Natural Resources Conservation Service (NRCS) and Soil and Water Conservation Districts (SWCD). The ISDA Resource Specialists assist with the planning, survey, design, and construction of thousands of practices annually. The common practices that these professionals work on include but are not limited to - filter strips, grassed waterways, forested and grassed buffers, water and sediment control basins, wetland restorations, and livestock watering systems.

The Division/SSCB also employs District Support Specialists, through the Clean Water Indiana Fund, to work directly with the local Soil and Water Conservation Districts (SWCD) to develop conservation priorities, goals, and plans for their respective territories. The District Support Specialists prepare and conduct trainings for SWCD supervisors and staff. They are also a resource for SWCDs in carrying out their legal and operational responsibilities.

Conservation Reserved Enhancement Program (CREP)

This program provides both state and federal incentives to landowners who are willing to install practices directly adjacent to eligible surface waters. This program is possible through an agreement between the State of Indiana and the United States Department of Agriculture. The program expanded in August 2010 from the original three watersheds--Pigeon-Highland, Tippecanoe, and Upper White River—to 11 watersheds. The expanded CREP area now includes Lower Wabash, Lower White, Lower East Fork White, Upper East Fork White, Middle Wabash-Busseron, Middle Wabash-Little Vermillion,

Middle Wabash-Deer, and Upper Wabash Watersheds. The eleven targeted watersheds include 26,250 eligible acres. To date, over 8,143 acres of conservation practices have been enrolled or installed along Indiana's rivers, lakes, and streams.

Clean Water Indiana

In 2012, the State Soil Conservation Board (SSCB) awarded over $1,088,000 to 22 Indiana Soil and Water Conservation Districts (SWCDs) who are partnering with 62 SWCDs to execute multi-district, multi-year watershed based grants. The projects will address at least two of the State priorities, as identified in the SSCB business plan adopted in 2010, including soil quality degradation, water quality impairments, and other soil and water related natural resources concerns. For 2013, the SSCB has voted to fund multi-year, multi-district, watershed based grants similar to the 2012 Clean Water Indiana program.

In 2010, 2011 and 2012, the State Soil Conservation Board (SSCB) allotted CWI funds for the Conservation Cropping Systems Initiative (CCSI), along with NRCS. The intent of CCSI is to promote a systematic approach to production agriculture focusing on continuous no-till/strip-till, cover crops, precision farming, nutrient and pest management, and conservation buffers resulting in improved soil quality, water quality, and profitability on Indiana cropland. Through this program, agronomy professionals provide very specific education and technical assistance to agricultural producers and our partners directed at production efficiency and nutrient/sediment runoff reduction. In FFY 2012, 169 presentations were given to over 10,000 individuals and CCSI was present at events and/or provided technical assistance in over 69 counties

Indiana On-Farm Network

Participating farmers use precision agriculture tools, protocols, and technologies to conduct in depth Nitrogen analysis on their own farms. This concept is considered adaptive management and generally results in changes that increase profitability of the producer and ultimately has a positive impact on water quality. This program was developed to address key challenges in advancing water quality goals in the state related to production agriculture. The adaptive management process has shown most growers can reduce their nitrogen rates by one-third while maintaining or increasing profitability. ISDA currently has established 13 groups, each evaluating approximately 35 fields with tools such as: Guided Corn Stalk Nitrate Testing, Geo-referenced Aerial Imagery, collaborative peer-to-peer learning, and Replicated Strip Trials. The Nitrogen data are reported back to farmers as their individual farm data and as aggregate results. Aggregate results are used publically for educational purposes. Field history information is collected from every participating farmer – previous crop, manure history, manure applications, commercial N applications (including timing of application, form, and rate) and tillage. This information is combined with analysis of results from on farm evaluation plots comparing different management practices (timing, form, application rate, etc). All data collected through OFN is anonymous. Reports can never be linked to a name or specific location.

Indiana Department of Natural Resources, Division of Fish and Wildlife, Lake and River Enhancement Program

The legislation establishing the Lake and River Enhancement (LARE) program in IDNR's Division of Fish and Wildlife charges the Department with the responsibility to "Administer a lake and river enhancement program to do the following: (A) Control sediment and associated nutrient inflow into lakes and rivers, and (B) Accomplish actions that will forestall or reverse the impact of that inflow and enhance the continued use of Indiana's lakes and rivers." An amendment in the 2011 General Assembly added use of LARE funds to control invasive plants or animals, or removal of logjams or obstructions in rivers. The first grant awards for logjam removal were made in March of 2012.

The importance of conserving natural resources, including wildlife, protecting the water quality of lakes and rivers, and protecting high water quality resources is recognized as important goals, addressed with projects to protect and enhance aquatic habitat for fish and wildlife. The effort to insure the continued viability of Indiana's publicly accessible lakes and streams for multiple uses, including recreational opportunities, is crucial since funding comes directly from boat-owners in Indiana. A lake and river enhancement fee annually assessed by the Indiana Bureau of Motor Vehicles (BMV) is collected when boats are registered. These funds are used for the LARE program as well as IDNR Division of Law Enforcement for aquatic safety programs and maritime patrols.

To accomplish the goals of the LARE program, grants have been made available for technical and financial assistance to various agencies and non-governmental entities (such as a lake or homeowner association) for qualifying projects since 1989. Projects to reduce the impact of soil erosion include the installation of grass cover, filter strips, and stream bank or shoreline stabilization structures to reduce sedimentation and nutrient runoff. In March of 2012 nearly one million dollars in grants were awarded to address control of invasive aquatic species, sediment removal from publicly accessible lakes and rivers, and logjam removal from rivers. New projects consisting of biological, diagnostic, design and construction projects on lakes and in lake watersheds throughout the state are proposed for funding starting after July 1, 2012. Watershed Land Treatment projects involving land users in several Soil and Water Conservation Districts were completed in 2011-2012, or are continuing. These projects promote improved water quality and aquatic habitat, enhanced opportunities for boating, fishing, and other recreational pursuits, as well as providing increased economic value for businesses, communities, and individuals who live on or use these water bodies.

Indiana Department of Natural Resources, Healthy Rivers Initiative (HRI)

In June 2010, Governor Mitch Daniels announced the ground-breaking Healthy Rivers INitiative, the largest conservation initiative to be undertaken in Indiana. The initiative includes a partnership of resource agencies and organizations who will work with willing landowners to permanently protect 43,000 acres located in the floodplain of the Wabash River and Sugar Creek in west-central Indiana and another 26,000 acres of the Muscatatuck River bottomlands in southeast Indiana. Staff from several divisions of IDNR, including Fish and Wildlife, Forestry, State Parks, Nature Preserves, and Land Acquisition, partner together with other personnel from local, state, and federal agencies along with

private sector companies such as Eli Lilly and non-governmental organizations, such as The Nature Conservancy to achieve the goals of the program.

These projects involve the protection, restoration and enhancement of riparian and aquatic habitats and the species that use them, particularly threatened, endangered, migratory birds and waterfowl. This initiative will also be beneficial to the public and surrounding communities by providing flood protection to riparian landowners, increasing public access to recreational opportunities, such as hunting, fishing, trapping, hiking, boating, and bird watching and leaving a legacy for future generations by providing a major conservation destination for tourists.

At the conclusion of the first two years of the HRI, in June of 2012, 29,492 acres of land are permanently protected, with 6,057 acres acquired by DNR in the Wabash River Project Area, 3,198 acres enrolled in the USDA Wetlands Reserve Program (WRP) to complement the existing 12,723 acres of state-owned land. IN the Muscatatuck Project Area, 2,504 acres were acquired; 2,521 acres were enrolled in the WRP, complementing the existing 2,489 acres of state-owned land.

An example of one success story in 2011-2012, was the creation of the Elanco-Clinton Labs Demonstration site near Terre Haute, protecting 308 acres through a conservation easement, with significant acreage of native grass plantings, restore wetlands, and tree plantings in an environment and location that can be utilized to teach both adults and youth of the possibilities in improving water quality through different conservation measures.

Indiana State Revolving Fund Loan Program

The Indiana State Revolving Fund (SRF) Loan Program finances projects that abate or prevent nonpoint source pollution of Indiana's waters. The SRF Program has traditionally provided low interest loans to Indiana communities for projects that improve wastewater and drinking water infrastructure. The Program has been expanded to fund projects that meet the objectives in the Indiana Nonpoint Source Management Plan. The money loaned to these nonpoint source projects also is documented as match, when applicable, for the state Section 319(h) Grant Program. Eligible nonpoint source projects must provide water quality benefits to their respective communities and may include one or more of the following:

- Wetland restoration/protection;
- Erosion control measures;
- Ground water remediation;
- Storm water BMPs;
- Source water and wellhead protection;
- Brownfield Remediation;
- Conservation easements; and
- Agricultural and waste management BMPs.

This reporting period, the SRF Program loaned $16.7 million to four communities on projects to reduce nonpoint source pollution, primarily by extending sanitary sewers to areas with septic systems, thereby eliminating this potential source of pollution. In this state fiscal year (7/1/2011 – 6/30/2012) 346 septic systems were eliminated. Throughout the life of the SRF Nonpoint Source Program, $196.2 million has been loaned for nonpoint source purposes. Approximately 11,000 septic systems have been removed from service and seven brownfield sites have been remediated

Indiana University School of Public and Environmental Affairs, Indiana Clean Lakes Program

The School of Public and Environmental Affairs (SPEA) at Indiana University has been working with IDEM through Section 319(h) funds to administer the Indiana Clean Lakes Program (CLP) since 1989. The Indiana CLP is a comprehensive, statewide public lake management program that includes public information and education, technical assistance, volunteer lake monitoring, and lake water quality assessment.

Indiana has over 1,400 lakes, reservoirs, and ponds. These waterbodies are one of the State's most precious natural resources. They provide drinking water, flood control, and a myriad of recreational opportunities including boating, swimming, fishing, hunting, and wildlife viewing. However, Indiana's lakes are under pressure. Human activities such as poorly managed agriculture, suburbanization of lakeshores, boating impacts, and septic system discharges can result in excessive nutrient concentrations reaching lakes. This can lead to accelerated eutrophication and related undesirable effects including nuisance algae, excessive plant growth, murky water, odor, and fish kills.

Section 314 of the Clean Water Act charges IDEM with responsibility for monitoring, assessing, and reporting the trophic state and trends in trophic conditions of Indiana's lakes. Continued assessment of lake nutrient levels and effects, as begun by the State in the early 1970s, is needed in order to do the following: 1) report the status of lake eutrophication levels to the EPA (EPA) in the State's 305(b) water quality reports and 303(d) listing of impaired waterbodies; 2) ascertain and track any trends in lake eutrophication levels for State and EPA use; 3) collect any data needed to continue to develop State nutrient criteria, as mandated by EPA; and 4) collect data needed to determine if lakes and reservoirs are meeting state water quality standards.

Indiana's CLP, coordinated by IU-SPEA staff and students, includes the following components:

- Annual sampling of lakes and reservoirs to meet numbers 1 and 2 above;
- Training and support of a corps of volunteer lake monitors;
- Education and outreach through the production and distribution of the quarterly newsletter, *Water Column;* maintenance of a website (http://www.indiana.edu/~clp/) preparation of brochures and fact sheets; and participation in the annual Indiana Lake Management Conference; and
- Providing technical assistance and expertise on lake-related issues within the State and elsewhere.

IU-SPEA completed a 319(h) grant project in January 2012 to collect and analyze water samples from lakes and reservoirs in Indiana from the 1999 through the 2011 summer sampling seasons. The *Indiana Lake Water Quality Assessment Report* and the *Indiana Volunteer Monitoring Report* from this project may be found on their web site at http://www.indiana.edu/~clp/PUBreports.php. IU-SPEA continues to collect lake data under a 319(h) grant that runs through 2013. Since 2010, data is being collected using a random sampling design (from a set of Indiana public lakes and reservoirs with boat access and a surface area greater than five acres) as opposed to a targeted design which was used in the past. This change was made to provide a more statistically valid assessment of Indiana lakes and reservoirs. By doing this, the biannual 305(b) report to EPA will more accurately reflect the status of Indiana's publicly-accessible lakes and reservoirs, without geographical bias.

During the summer of 2012, IU-SPEA is participating with the U.S. Environmental Protection Agency and other states, tribes, and partners to conduct the second nationwide survey of the condition of the nation's lakes. The National Lakes Assessment (NLA) will help citizens and governments measure the health of our waters, take actions to prevent pollution, and evaluate the effectiveness of protection and restoration efforts. The NLA 2012 is one in a series of national surveys of the condition of the nation's waters (see www.epa.gov/aquaticsurveys).

Indiana Lake Michigan Coastal Program

The purpose of the Indiana Lake Michigan Coastal Program (LMCP) is to enhance the state's role in planning for and managing natural and cultural resources in the coastal region and to support partnerships between federal, state and local agencies and organizations. The Indiana Department of Natural Resources is the lead agency implementing the LMCP and the program houses a full-time coastal nonpoint source (CNPS) coordinator who provides technical assistance, education and outreach, and coordinates efforts toward the achievement of management measures that combat sources of nonpoint source pollution.

The LMCP passes through approximately $650,000 annually through the Coastal Grants Program for projects to protect and restore natural, cultural, and historic resources in Indiana's Lake Michigan coastal region. Project categories include land acquisition (ex. riparian corridors), low cost construction (ex. natural area restoration), education and outreach, and planning/coordination/management (ex. land use planning and ordinances). Priorities for 2012 Coastal Grant funding are:

- **Low Cost Construction:** Natural Area Restoration
- **Acquisition:** Lands adjacent to Indiana Dunes National Lakeshore and / or Dedicated State Nature Preserves
- **Planning/Coordination/Management:** Green/Blueway Trail Implementation
- E**ducation / Outreach:** Environmental Curriculum
- **Applied Research:** Follow-up research on storm water BMP effectiveness
- **Emerging Issues:** Planning for non-auto transportation

As part of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), Congress created a stand-alone provision, Section 6217, which requires that states and territories with approved coastal zone management programs develop a coastal nonpoint source pollution control program to address water quality impairment of coastal waters. The purpose of the program is to develop and implement management measures for nonpoint source pollution to restore and protect coastal waters. The DNR LMCP and IDEM Section 319(h) program work together in meeting the requirements of this program. The CNPS coordinator is responsible for 6217 development and implementation.

The LMCP submitted supporting documentation to the National Oceanic and Atmospheric Administration (NOAA) and EPA for the following Management Measures on March 26, 2010:

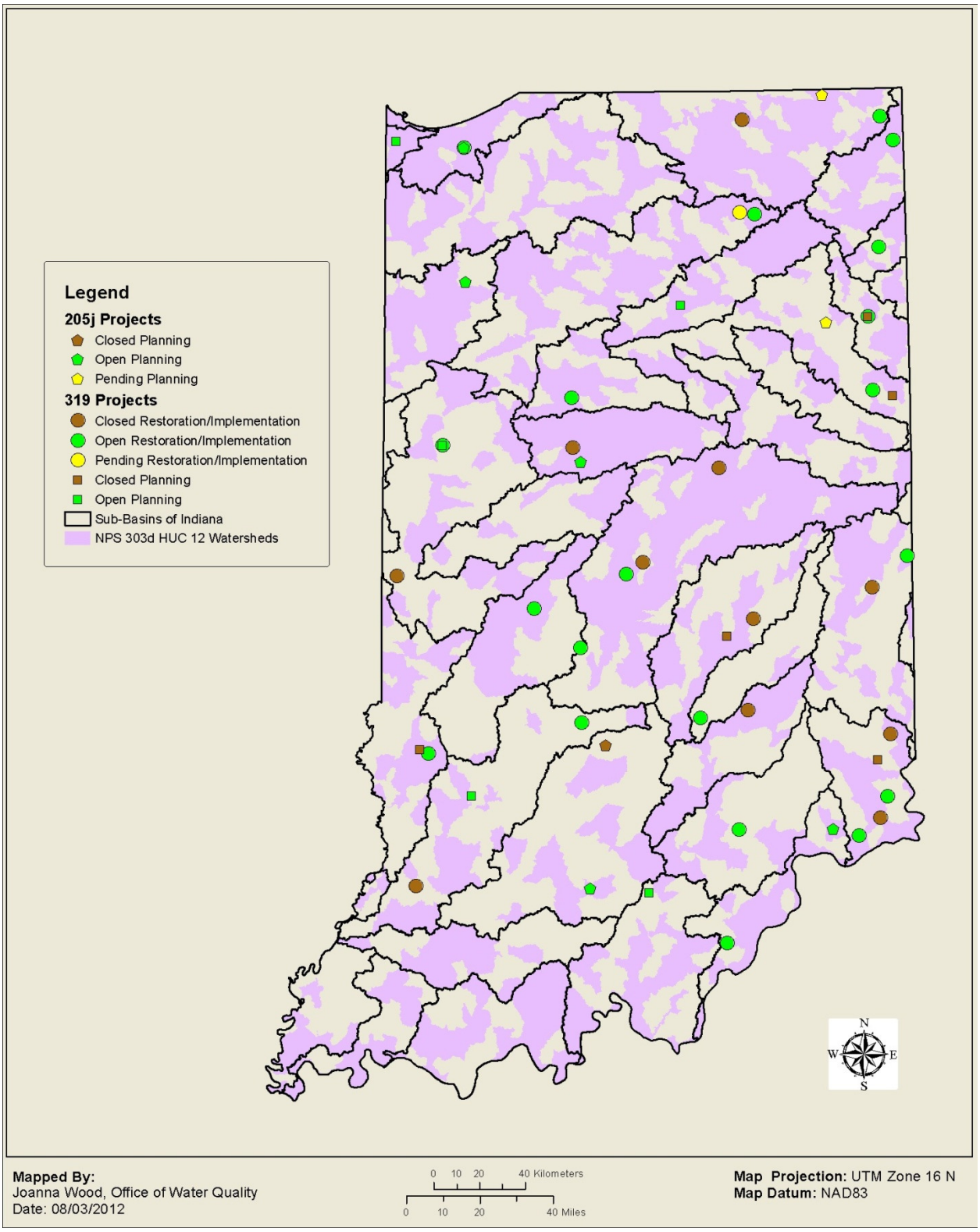
- New Development and Site Development;
- Watershed Protection and Existing Development;
- New and Operating Onsite Disposal Systems (OSDS);
- Planning, Siting, and Developing Roads and Highways;
- Siting, Designing, and Maintaining Bridges;
- Road, Highway, and Bridge Operation and Maintenance;
- Road, Highway, and Bridge Runoff Systems; and Hydromodification.

The NOAA and EPA reviewed the supporting materials and on June 24, 2010, and submitted findings to the state regarding these measures. The findings held that Indiana fully meets requirements for 9 of the 13 measures submitted and 2 others require minor additional supporting documentation.

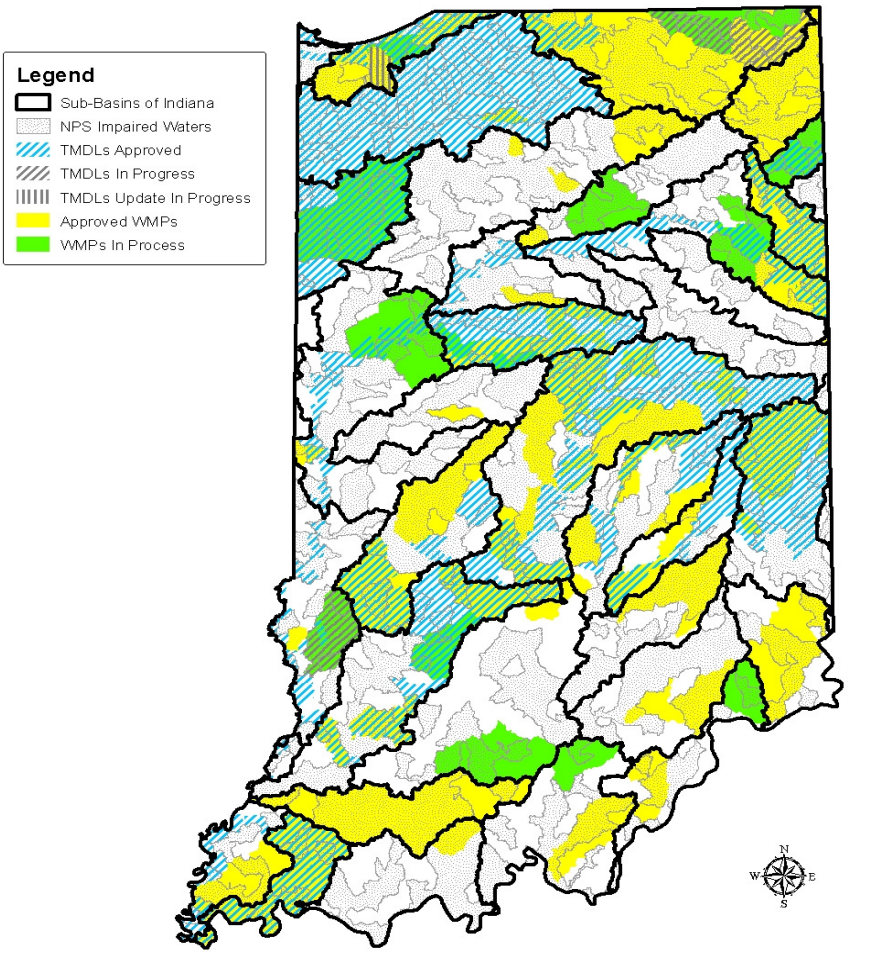
The LMCP manages the Indiana Clean Marina Program, a voluntary, incentive based program that encourages marinas and recreational boaters to implement environmentally sound practices to protect Indiana's inland and coastal waterways. In 2011, the LMCP designated its fourth marina, the Portage Public Marina. Since the program's inception in 2009 three other marinas have been designated officially as clean marinas –Hammond Marina, Trail Creek Marina, and Washington Park Marina. Several hundred bilge socks that absorb fuel and oil were purchased and are currently being distributed by the Coastal Nonpoint Program to boaters and marinas in addition to educational material distributed at several public events throughout the year.

The LMCP has partnered with the Indiana State Department of Health (ISDH) to develop an online septic system tracking database. The online database is modeled upon The Wastewater Information System Tool (TWIST) developed by the EPA. It allows the state and local health departments to effectively inventory and manage small wastewater treatment systems in their jurisdictions. Additionally, it is designed to track information related to homes and facilities served, permits, site evaluations, types of systems, inspections, and complaints. In 2010 the CNPS coordinator has coordinated with ISDH on Indiana's Network for Tracking of Onsite Sewage Systems (iTOSS) training for county health departments. The creation of an onsite septic work group in 2011 will combine resources on a regional scale to determine the best approach to combating failing septic systems.

APPENDIX A: Distribution of Nonpoint Source Projects



APPENDIX B: Watershed Planning/TMDL Activities and 303(d) Listed Waterbodies by Watershed Area



Appendix B illustrates the distribution of TMDL development activities over watershed planning activities. The grayed areas are representative of the watersheds that include at least one listing of a nonpoint source impaired water body. As evident by the areas with solid green or yellow and blue or gray stripes, these watersheds have receive much attention for their level of impairments and interest from local entities to improve water quality through comprehensive planning and subsequent implementation activities.

APPENDIX C: Open 319(h) Projects 9/1/11 – 8/31/12

FFY	ARN	Contractor	Project	Status	Start	End	Type
2005							
	9-254	Indiana University	Indiana Clean Lakes Program	Closed	8/5/2009	1/4/2012	Assessment
2007							
	7-182	LaGrange County SWCD	Little Elkhart River WMP Update	Closed	11/26/2007	11/25/2011	Restoration/Impl
	7-183	Knox County SWCD	Kessinger Ditch WMP Implementation	Closed	9/22/2007	9/21/2011	Restoration/Impl
	7-186	Purdue University	Development/Demo of Evaluation Framework	Closed	7/14/2008	1/31/2012	ProgramSupport
	7-187	Sullivan County SWCD	Busseron Watershed Planning & Implementation	Closed	12/12/2007	12/11/2011	Planning
	8-55	Vermillion County SWCD	Little Vermillion Watershed Project	Closed	5/1/2008	10/31/2011	Restoration/Impl
	8-56	Wayne County SWCD	Whitewater River Initiative	Closed	2/22/2008	2/21/2012	Restoration/Impl
2008							
	1-64	Wabash River Enhancement Corp.	Region of the Great Bend of the Wabash Bridging	Closed	5/12/2011	5/11/2012	Planning
	8-189	Save the Dunes Conservation Fund	Salt Creek Watershed Cost-Share & Outreach Program	Open	2/1/2009	1/31/2013	Restoration/Impl
	8-190	Delaware Co. SWCD	White River Watershed Project	Closed	12/11/2008	12/10/2011	Restoration/Impl
	9-56	Dearborn County SWCD	Tanners Creek Watershed Project	Closed	8/26/2008	11/11/2011	Restoration/Impl
	9-57	Historic Hoosier Hills	South Laughery Creek Watershed	Open	4/1/2009	1/31/2013	Restoration/Impl
	9-89	Madison County SWCD	Little Duck & Lilly Creek Implementation Project	Closed	10/27/2008	10/26/2011	Restoration/Impl
	9-90	Manchester College	Middle Eel River Watershed Initiative	Open	1/1/2009	12/31/2012	Planning
	9-91	Historic Hoosier Hills	Indian Creek Watershed Project	Open	2/26/2009	2/25/2013	Restoration/Impl
2009							
	10-1	Indiana University	Eagle Creek Watershed Implementation Project	Open	12/3/2009	12/2/2012	Restoration/Impl
	10-26	Tetra Tech Environmental, Inc.	TMDL and 9 Key Elements of a WMP Template	Closed	3/4/2010	9/3/2011	ProgramSupport
	2-6	Wabash River Enhancement Corp.	Region of the Great Bend of Wabash WMP Impl	Open	2/14/2012	2/13/2015	Restoration/Impl
	2-7	Bartholomew County SWCD	Flatrock-Haw WMP Implementation	Open	1/3/2012	1/2/2015	Restoration/Impl
	9-272	Tippecanoe Watershed Foundation	WQ Improvement in Upper Tippi/Grassy Creek	Open	8/27/2009	8/26/2012	Restoration/Impl
	9-274	Allen County SWCD	St. Marys River WMP Implementation	Open	1/15/2010	1/14/2013	Restoration/Impl
	9-275	Steuben County SWCD	Pigeon Creek WMP Implementation Phase 2	Open	9/23/2009	9/22/2012	Restoration/Impl
	9-276	Monroe County SWCD	Bean Blossom Watershed Implementation Project	Open	11/3/2009	11/2/2012	Restoration/Impl
	9-277	Historic Hoosier Hills	Central Muscatatuck Watershed Project	Open	8/27/2009	8/26/2013	Restoration/Impl
	9-278	Putnam County SWCD	Big Walnut/Deer Creek Watershed Implementation	Open	8/27/2009	8/26/2012	Restoration/Impl
	9-282	Upper Wabash River Basin	Wabash River Basin WMP Implementation	Open	8/28/2009	2/27/2013	Restoration/Impl
2010							
	10-64	Indiana Association of Soil and	Capacity Building & Public Support for Wtrshd Grps	Open	9/22/2010	9/21/2012	ProgramSupport
	10-65	St. Joseph River Watershed	Middle St. Joseph River WMP Development & Impl.	Open	9/27/2010	3/26/2014	Restoration/Impl

APPENDIX C: Open 319(h) Projects 9/1/11 – 8/31/12

	10-66	Purdue University	Watershed Leadership Academy	Open	2/1/2011	1/31/2013	ProgramSupport
	10-80	Clark County SWCD	Silver Creek Watershed Improvement Project	Open	10/18/2010	1/17/2014	Restoration/Impl
	10-81	Jasper County SWCD	Task G - Upper Iroqouis Watershed Initiative	Open	11/8/2010	11/7/2014	Planning
	10-84	The Nature Conservancy	Two-Stage Ditch Outreach and Technology Transfer	Closed	12/17/2010	12/16/2011	Education
	10-85	Dearborn County SWCD	Hogan Creek Watershed Project	Open	11/16/2010	11/15/2013	Restoration/Impl
	10-86	LaGrange County SWCD	Pigeon River WMP Development & Implementation	Open	9/28/2010	9/27/2014	Restoration/Impl
	10-87	Washington County SWCD	Mill Creek - Blue River Watershed Project	Open	11/15/2010	2/14/2013	Planning
	1-2	Sullivan County SWCD	Busseron Creek Watershed Implementation	Open	11/24/2010	11/23/2014	Restoration/Impl
	1-66	Indiana State Department of	Technical Assistance for Agriculture	Open	7/15/2011	7/14/2014	ProgramSupport
	2-72	Purdue University	Watershed Leadership Academy Con't	Pending			ProgramSupport
	2-73	Tippecanoe Watershed Foundation	Upper Tippecanoe River-Grassy Creek Implementation	Pending			Restoration/Impl
2011							
	2-11	Save the Dunes Conservation Fund	Little Calumet River East Branch WMP	Open	1/17/2012	1/16/2014	Planning
	2-13	Greene County SWCD	Plummer Creek WMP	Open	3/1/2012	8/31/2014	Planning
	2-15	Upper White River Watershed	Partners & Projects Protecting the White Implemen	Open	1/30/2012	1/29/2015	Restoration/Impl
	2-16	St. Joseph River Watershed	Upper St. Joe Watershed Project	Open	2/14/2012	1/31/2016	Restoration/Impl
	2-21	Allen County SWCD	Upper Maumee WMP & Implementation	Open	2/14/2012	1/31/2016	Restoration/Impl
	2-22	Carroll County SWCD	Deer Creek-Sugar Creek WMP & Implementation	Open	4/13/2012	1/31/2016	Restoration/Impl
	2-25	Indiana University	Indiana Clean Lakes Program	Open	1/5/2012	1/4/2016	Assessment
	2-8	The Nature Conservancy	Two-Stage Ditch Implementation	Open	1/17/2012	1/16/2014	Restoration/Impl

APPENDIX D: Open 205(j) Projects 9/1/11 – 8/31/12

FFY	ARN	Contractor	Project	Status	Start	End	Type
2007							
	1-45	U. S. Geological Survey	Assessment of Nutrients using Invertebrates &	Closed	4/8/2011	4/7/2012	Assessment
2009							
	10-27	Save the Dunes Conservation Fund	Salt Creek Integrated Pilot	Open	6/1/2010	2/28/2014	Planning
	9-271	Clinton County SWCD	S. F. Wildcat Creek WMP	Open	10/29/200	10/28/201	Planning
2009ARRA							
	10-19	Northern Indiana Regional Planning	Watershed Planning in NW IN	Closed	2/3/2010	2/2/2012	Planning
	10-20	MACOG	Headwaters Stock Ditch/Pleasant, Riddles	Closed	2/3/2010	2/2/2012	Planning
	10-21	Ohio River Valley Water Sanitation	Lower Wabash R. Nutrients & Continuous	Closed	2/3/2010	4/2/2012	Assessment
2010							
	10-81	Jasper County SWCD	Upper Iroquois Watershed Initiative	Open	11/8/2010	11/7/2014	Planning
	10-83	Orange County SWCD	Lost River Watershed	Open	11/15/201	2/14/2013	Planning
2011							
	2-14	Marion County SWCD	ICP Technical Training Coordination	Open	1/24/2012	1/23/2014	ProgramSupport
	2-2	Ohio River Valley Water Sanitation	Lower Wabash River Nutrients Monitoring	Open	1/20/2012	1/19/2015	Assessment
	2-24	enfoTech and Consulting, Inc.	AIMS II Expansion, Enhancements &	Open	6/6/2012	6/5/2014	ProgramSupport
	2-35	Jefferson County SWCD	Indian-Kentuck Creek WMP	Open	3/13/2012	5/12/2014	Planning
2012							
	N12-24	Upper Wabash River Basin Commission	Upper Wabash River WMP	Pending			Planning
	N12-7	LaGrange County SWCD	Fawn River WMP	Pending			Planning

Appendix E: Project Summaries for Closed Section 319(h) Projects

FFY 2005

Indiana Clean Lakes Program (9-254) – Indiana University, School of Public and Environmental Affairs, conducted an assessment of Indiana lakes and reservoirs in July and August of 2009, 2010 and 2011 to determine water quality and track trends in lake eutrophication levels at a total of 174 lakes. They also trained and supported a corps of volunteer lake monitors and conducted education and outreach to the public on lake and watershed nonpoint source pollution issues.

FFY 2007

Development and Demonstration of Outcomes-Based Evaluation Framework for the Indiana Nonpoint Source Program (7-186) – Purdue worked in cooperation with other states; the U.S. Environmental Protection Agency Region 5 and the Regional Water Quality Leadership Team to continue the development and testing of a social indicators framework for the purpose of assessing the impacts of watershed planning and implementation projects on social outcomes identified by the regional team. Purdue will also provided support to IDEM staff in the development of the environmental indicator framework. Indicators identified will be used to measure changes in hydrology, water quality, and biological communities where needed. Purdue developed a 2-tiered set of indicators, including a core indicator set that will be used by all 319 projects collecting environmental data, and a supplemental indicator set to measure water quality outcomes in a scientifically-defensible way.

Little Elkhart River WMP Update (7-182) - The LaGrange County SWCD produced a watershed management plan (WMP) for four 14-digit hydrologic unit code (HUC) watersheds within the Little Elkhart River watershed: 04050001140040, 04050001140050, 04050001140060, and 04050001140070. This WMP is an addendum to the previous plan completed for three (3) subwatersheds in the Little Elkhart River watershed: HUCs 04050001140010, 04050001140020 and 04050001140030. A monitoring program was conducted to establish baseline conditions and help with the development of the WMP. The District also developed and implemented a cost-share program to implement best management practices outlined in the Little Elkhart River Watershed Management Plan. Public education/outreach activities included a brochure, field days, pasture walks, workshops, and steering committee meetings.

Kessinger Ditch WMP Implementation (7-183) - The Knox County SWCD developed and implemented a cost-share program for best management practices outlined in the Kessinger Ditch Watershed Management Plan. Eligible BMPs included no-till, cover crops, riparian buffers, wetland restoration, livestock exclusion, alternative watering systems, and nutrient management plans. A water quality monitoring program was also conducted to help monitor the success of the project. Public education/outreach activities included public meetings, field days, mailings to watershed residents on proper septic maintenance, press releases to the media and presentations to school students.

Busseron Watershed Planning & Implementation (7-187) – The Sullivan County SWCD produced a watershed management plan for the Busseron Creek watershed, Hydrologic Unit Code 05120111160. A steering committee of local stakeholders was formed to guide the development of the WMP. A monitoring program was conducted to investigate water quality concerns in the watershed. The district also implemented an outreach program to educate the public about the project and encourage behavior change and better environmental decisions. The program included field days, workshops, newsletters, educational material about watershed management to schools, civic groups and other organizations, and information to the local media. The District then implemented a cost-share program to install BMPs in critical areas in the watershed as identified in the WMP.

Appendix E: Project Summaries for Closed Section 319(h) Projects

Little Vermillion Watershed Project (8-55) - The Vermillion County SWCD produced a watershed management plan for the Little Vermillion River watershed, Hydrologic Unit Codes 05120108140040, 050, and 060. A steering committee of local stakeholders was formed to guide the development of the plan. A monitoring program was conducted to identify nonpoint sources of pollution and determine critical areas in the watershed. The District also implemented a cost-share program to reduce sediment, nutrient, and E. coli loads in the watershed using BMPs outlined in the WMP. An outreach and education program was conducted to educate the public about the project and raise awareness of water quality issues and BMPs. This program included newsletters, public meetings, press releases to local media, a septic workshop focusing on maintenance and other septic issues, and no-till field days.

Whitewater River Initiative (8-56) – The Wayne County SWCD implemented a cost-share program for best management practices that address the natural resource concerns outlined in the Middle Fork of the East Fork of the Whitewater River Watershed Management Plan. The District also produced a watershed management plan for the West Fork Whitewater River Watershed (Hydrologic Unit Codes 05080003010; 05080003020; 05080003030). A West Fork Steering Committee was established and meetings were conducted to guide the development of the WMP. Education and outreach activities were conducted to raise public awareness and participation in the Whitewater River Initiative Project including West Fork and East Fork workshops or field days about nonpoint source pollution and other related water quality topics, Middle Fork Reservoir Clean-ups, West Fork Clean-ups, brochures, public meetings, newsletters, and press releases. A physical, chemical and biological monitoring program was also conducted in both watersheds.

FFY 2008

White River Watershed Project (8-190) - Delaware County SWCD installed best management practices in the White River watershed in accordance with the goals set forth in the White River Watershed Management Plan. In addition, a watershed management plan was developed for Truitt Ditch and Muncie Creek sub-watersheds located within the greater Upper White River Watershed. A public education and outreach program and a water quality monitoring program were conducted in the watersheds.

Tanners Creek Watershed Project (9-56) - Dearborn County SWCD implemented the Tanners Creek Watershed Management Plan by implementing a cost-share program to install BMPs that address the water quality concerns outlined in the WMP. An education and outreach program designed to bring about behavioral changes and encourage BMP implementation that will lead to reduced nonpoint source pollution in the watershed was also conducted.

Little Duck & Lilly Creek Implementation Project (9-89) – Madison County SWCD implemented the Little Duck/Lilly Creek Watershed Management Plan by implementing a cost-share program for BMPs that address the water quality concerns outlined in the Little Duck/Lilly Creek WMP. They also conducted a public education and outreach program and water quality monitoring in the watershed.

Region of the Great Bend of the Wabash River Bridging Project (1-64) – The Wabash River Enhancement Corporation used this bridging grant between planning and implementation to focus on the development of a cost-share program, which when implemented will target critical areas identified in the Region of the Great Bend of the Wabash River Watershed Management Plan, continue education

and outreach and community building efforts initiated under the planning phase of this project, and extend their comprehensive water quality monitoring program within the watershed.

FFY 2009

Water Quality Improvement in the Upper Tippecanoe/Grassy Creek Watershed (9-272) – The Tippecanoe Watershed Foundation developed and implemented a cost-share program for BMPs that reduce nonpoint source pollution in the watershed and that address the water quality concerns outlined in the Upper Tippecanoe River WMP. A water quality monitoring program was conducted including long-term trend monitoring using a tributary approach throughout the watershed, pre-BMP implementation monitoring, and post-BMP implementation monitoring for projects that have been implemented over the past 12 years. TWF also conducted an education and outreach program designed to bring about behavioral changes to reduce nonpoint source pollution. The TWF developed and distributed a survey throughout the watershed to understand the awareness, attitudes, capacity, and behaviors of residents of the watershed. The survey followed the EPA Region V Social Indicator framework.

Big Walnut/Deer Creek Watershed Implementation (9-278) – The Putnam County SWCD developed and implemented a cost-share program for BMPs that address the water quality concerns outlined in the Big Walnut-Deer Creek WMP. The SWCD also implemented two BMPs as demonstration projects. A monitoring program was conducted to help isolate and/or identify pollution sources in priority subwatersheds. The SWCD conducted an education and outreach program designed to bring about behavioral changes and encourage BMP implementation including public meetings, a Project WET and a Hoosier Riverwatch workshop, news releases to local media, a field day exhibiting the demonstration projects, educational signs for the demonstration sites, a targeted septic outreach program with a focus on realtor, homeowner, and neighborhood education of septic system maintenance. A survey was developed and distributed throughout the watershed to understand the awareness, attitudes, capacity, and behaviors of watershed residents. The survey followed the EPA Region V Social Indicator framework.

TMDL and 9 Key Elements of a WMP Template (10-26) – Tetra Tech Environmental, Inc., developed a TMDL Template that meets the requirements for an approvable TMDL to EPA Region 5 and meets many of the required 9 key elements of a Watershed Management Plan. With the TMDL and WMP aligned it helps more clearly outline what is needed in the watershed to improve water quality. This will also help motivate watershed groups by giving them more clear guidelines on what is needed and providing more watershed information for them to work from, which will ultimately allow for earlier implementation.

FFY 2010

Two-Stage Ditch Outreach and Technology Transfer (10-84) – The Nature Conservancy conducted an education and outreach program to promote two-stage ditches as a BMP for nonpoint source pollution reduction. Target audiences included county surveyors, landowners, and groups active in watershed management. A media relations program was conducted utilizing a wide variety of tools for engaging the public and target audiences and providing information on two-stage ditch technology including: a webpage focused on the two-stage ditch; PowerPoint presentations that provide an overview of two-stage ditch technology and are targeted to county surveyors, community organizations, and landowners; and press releases or articles to educate farmers, landowners, community members and local officials.

Appendix F: List of Attached Final Reports for Section 319(h) Projects

ARN	FFY	Project Name
9-254	2005	Indiana Clean Lakes Program
7-182	2007	Little Elkhart River WMP Update
7-183	2007	Kessinger Ditch WMP Implementation
7-186	2007	Development and Demonstration of Evaluation Framework
7-187	2007	Busseron Watershed Planning & Implementation
8-55	2007	Little Vermillion Watershed Project
8-56	2007	Whitewater River Initiative
1-64	2008	Region of the Great Bend of the Wabash River Bridging Project
8-190	2008	White River Watershed Project
9-56	2008	Tanners Creek Watershed Project
9-89	2008	Little Duck & Lilly Creek Implementation Project
10-26	2009	TMSL and 9 Key Elements of a WMP Template
10-84	2010	Two-Stage Ditch Outreach and Technology Transfer

The following projects have not been closed-out. The final report will be submitted when the project is closed-out.

9-272	2009	WQ Improvement in Upper Tippecanoe/Grassy Creek
9-278	2009	Big Walnut/Deer Creek Watershed Implementation